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Field Manual **FM10-43M**

FABRIC REPAIR SPECIALIST

STANFORD UNIVERSITY
MAR 1982
GOVERNMENT DEPARTMENT

DECEMBER 1981

MOS 43M SKILL LEVELS 1, 2, 3, & 4

HEADQUARTERS, DEPARTMENT OF THE ARMY

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*FM 10-43M

FIELD MANUAL
NO. 10-43M

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 21 December 1981

SOLDIER'S MANUAL
MOS 43M
FABRIC REPAIR SPECIALIST
SKILL LEVELS 1/2/3/4

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When used in this publication, "he," "him," "his," and "men" represent both the masculine and feminine genders unless otherwise stated.

***This publication supersedes FM 10-43M, 25 July 1979.**

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COMMANDER'S ATTENTION

This soldier's manual will be made available in the unit for study by each unit member in MOS 43M. It need not be in the possession of each soldier but must be available for study in the unit in order to support SQT administration. If personnel transfer, they must return the manuals to their units. Control of the soldier's manual issued by the unit will be the responsibility of the unit commander.

This manual identifies the tasks each soldier in MOS 43M must be proficient in to be MOS qualified. By following the guidance that the manual provides, soldiers can advance to positions of responsibility in keeping with their aptitude and motivation.

Initial distribution of the soldier's manual will be to the unit according to the assigned strength of MOS 43M. Resupply, reissue, and dissemination of changes will be accomplished through regular publication channels.

Each soldier at skill levels 1, 2, 3, and 4 of MOS 43M must have access to this manual, which covers skill levels 1, 2, 3, and 4. Personnel at skill level 4 will also need FM 10-57E. Personnel promoted to E8 also will need access to FM 10-76Z5.

If your unit needs extra copies of soldier's manuals for MOS study, libraries, or other training needs, a request for publications may be sent directly to the US Army Publications Center, 2800 Eastern Boulevard, Baltimore, MD 21220.

This soldier's manual was prepared by the US Army Quartermaster School.

HARRY L. DUKES, JR.
Major General, USA
Commandant

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RESERVE COMPONENT
ARMY NATIONAL GUARD AND ARMY RESERVE

This manual was written to cover the job requirements of Reserve component, Army National Guard, and Active Army soldiers. Generally, the jobs and tasks in this manual apply to you without change.

As a member of the Reserve components, you will have limited training time and opportunity to practice tasks on the job. The availability of equipment may be limited also. This means that you must use the references, your drill periods, and annual active duty for training to learn all you can about performing each task.

Many of the tasks in this manual are those you learned in advanced individual training. Others you will have to master from scratch. Since you must learn these tasks on your own, it's to your advantage to get started right away. You can get additional study materials through your unit. Your performance is measured by your ability to do all of the tasks you are assigned.

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FABRIC REPAIR SPECIALIST AT SKILL LEVEL 1

In AIT you learned the basic skills of a fabric repair specialist and were awarded skill level 1 on graduation.

When you are assigned to a unit as a fabric repair specialist, you are ready to start planning for your climb up the career ladder.

During the next testing period, you will receive an SQT Notice and Job Site Component (SNJSC) booklet. Use a copy of FM 10-43M as a guide to help you get ready for this test.

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TASKS FOR ALL FABRIC REPAIR SPECIALISTS

SKILL LEVEL 1

TASK NUMBER	TITLE	PAGE
101-514-1901	Set up the M1941 space heater.	2-2
101-514-1903	Pitch a general-purpose medium tent.	2-9
101-514-1905	Operate the M1941 space heater.	2-13
101-514-1906	Dismantle the M1941 space heater for movement.	2-16
101-513-1101	Prepare the mobile clothing repair trailer for operation	3-3
101-513-1106	Operate the 3-kilowatt generator set.	3-14
101-513-1107	Prepare and operate the light-duty sewing machine.	3-19
101-513-1108	Troubleshoot the light-duty sewing machine.	3-36
101-513-1109	Prepare and operate the darning machine.	3-44
101-513-1110	Troubleshoot the darning machine.	3-54
101-513-1151	Sew a hem in a pair of OG 107 field trousers with seam type 1.	3-62
101-513-1152	Construct and attach a precut patch-type pocket to an OG 108 shirt using seam type 2.	3-64
101-513-1153	Construct and attach coat top pocket flaps with seam type 3.	3-66
101-513-1154	Restitch seam type 4 to repair back panels of a parka shell.	3-68
101-513-1155	Attach a replacement collar to a CTA 50-900 item with seam type 5.	3-70
101-513-1156	Finish a replacement collar with seam type 6.	3-73
101-513-1157	Zigzag darn holes up to one-half inch in diameter.	3-76
101-513-1158	Reinforce darn holes up to 1 inch in diameter.	3-78
101-513-1159	Repair 1- to 2-inch holes, tears, cuts, or extremely worn areas on CTA 50-900 items with a simple patch (top).	3-80
101-513-1160	Construct and sew T-patch to repair an L-shaped tear on CTA 50-900 items.	3-82

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TASK NUMBER	TITLE	PAGE
101-513-1161	Sew organizational shoulder insignia on personal and organizational clothing issue items.	3-84
101-513-1162	Replace a slide fastener in a pair of OG 107 or OG 108 trousers.	3-86
101-513-1163	Repair small holes, tears, and rips in sleeping bags with a machine-sewn pinch patch.	3-89
101-513-1164	Replace a damaged slide fastener in a sleeping bag.	3-95
101-513-1201	Prepare and operate the textile sewing machine.	3-102
101-513-1202	Troubleshoot the textile sewing machine.	3-112
101-513-1203	Prepare and operate the heavy-duty sewing machine (Model 7-33).	3-120
101-513-1204	Troubleshoot the heavy-duty sewing machine.	3-133
101-513-1205	Attach a handworked grommet to a GP medium tent or tarpaulin.	3-138
101-513-1206	Replace missing or defective grommets on canvas items with punch and die set.	3-142
101-513-1208	Construct and sew simple top patches.	3-146
101-513-1209	Construct and sew watershed patches to repair holes, tears, and cuts in canvas items.	3-149
101-513-1210	Construct an overseam patch and apply it over a hole or a tear in a seam of a canvas item.	3-153
101-513-1211	Construct and sew a reinforced grommet patch to repair a torn-out grommet patch on a canvas item.	3-157
101-513-1212	Construct and sew an eave grommet patch.	3-160
101-513-1213	Construct and sew a seam-to-seam patch.	3-164
101-513-1214	Sew support strap patches with a heavy-duty sewing machine.	3-168
101-513-1215	Construct and sew chapes on canvas or web items.	3-170
101-513-1216	Fabricate replacement seat covers for tactical vehicles.	3-172
101-513-1217	Replace damaged corner slide fasteners on GP medium or GP large tents.	3-185

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SKILL LEVEL 2

TASK NUMBER	TITLE	PAGE
101-513-2101	Process incoming DA Form 2407 (Maintenance Request).	3-190
101-513-2102	Transfer information from DA Form 2407 (Maintenance Request) to DA Form 2405 (Maintenance Request Register).	3-195
101-513-2103	Inspect and classify individual issue items of clothing.	3-199
101-513-2104	Perform final inspection on repaired CTA 50-900 items.	3-201

SKILL LEVEL 3

101-513-3101	Establish a shop safety program.	3-204
101-513-3102	Direct operations of the shop receiving, classification, and repair area.	3-206
101-513-3103	Control and maintain records for equipment.	3-209

SKILL LEVEL 4

There are no technical tasks listed for skill level 4. Skill level 4 technical tasks are the same as those that are listed for skill level 3.

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CHAPTER 1
INTRODUCTION

WHAT IS YOUR SOLDIER'S MANUAL? This manual is a guide for you, the Fabric Repair Specialist. It tells you what the Army expects you to know and be able to do as a 43M to be proficient in your MOS at your current skill level. It explains the career management and training program that is set up for you to help you reach your full potential for promotion and a rewarding career. To get the most out of your soldier's manual, you need to know how to use it and how to set up a study pattern for yourself. Read this introduction and the table of contents to get a general idea of what this manual covers.

EPMS. Your soldier's manual has been written as a part of the Enlisted Personnel Management System (EPMS). As you read this manual, you will be learning new terms. EPMS is a single plan in which your training, evaluation, classification, and promotion programs are combined to work together under one system.

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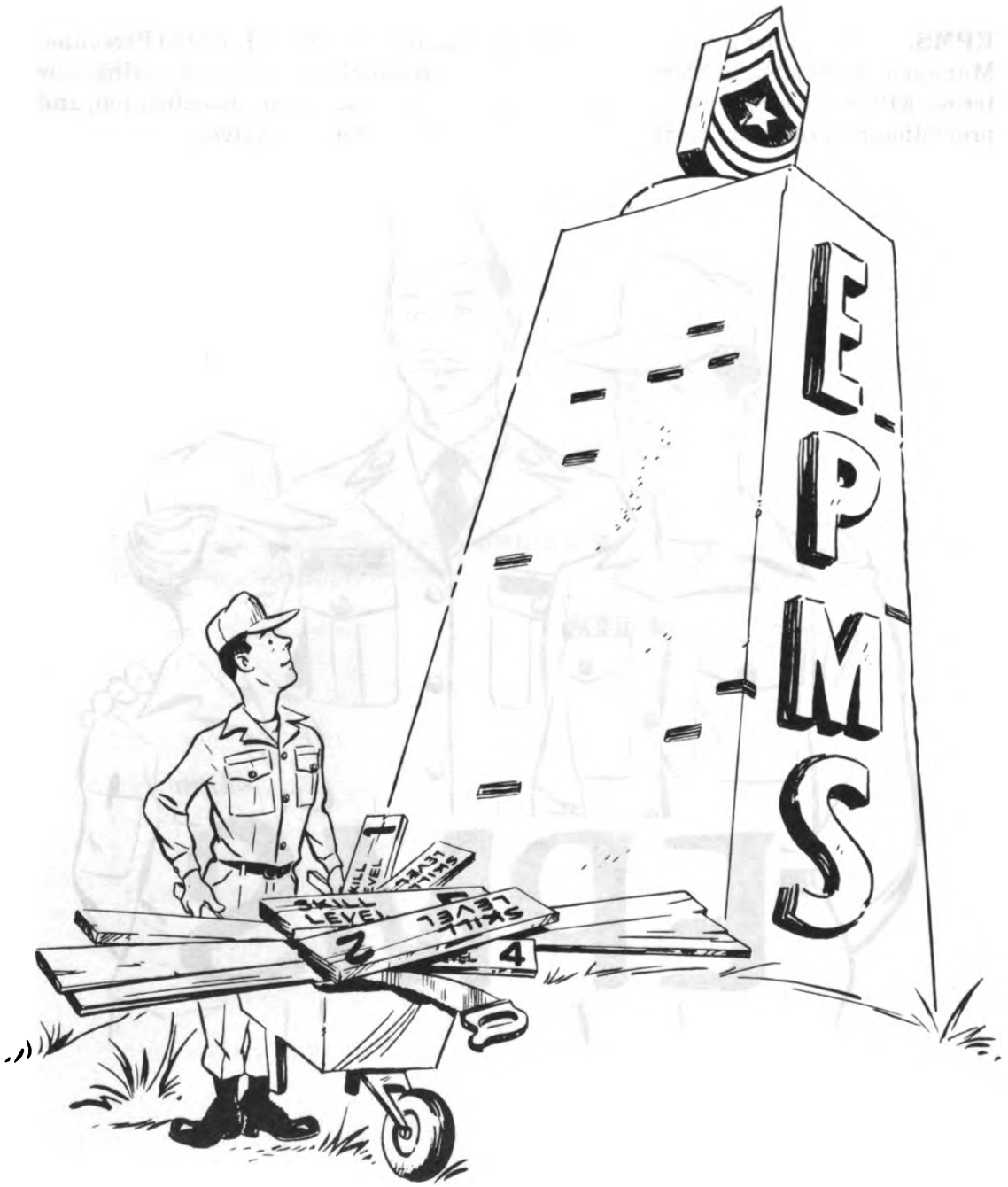
This system is designed to provide a logical method to guide you in the most direct route from E1 to E9 (page 1-3). It will do away with promotion bottlenecks and allow fair promotion opportunities in your pay grade.

EPMS gives you the opportunity to broaden your skills and to take on greater job responsibilities. All of your training and each step to a higher grade will be planned for you during your career.

Under **EPMS,** you will be given continuous training to prepare you for each skill level as a Fabric Repair Specialist. Simply stated, your skill level indicates how much you know about your job and how well you are able to perform it.



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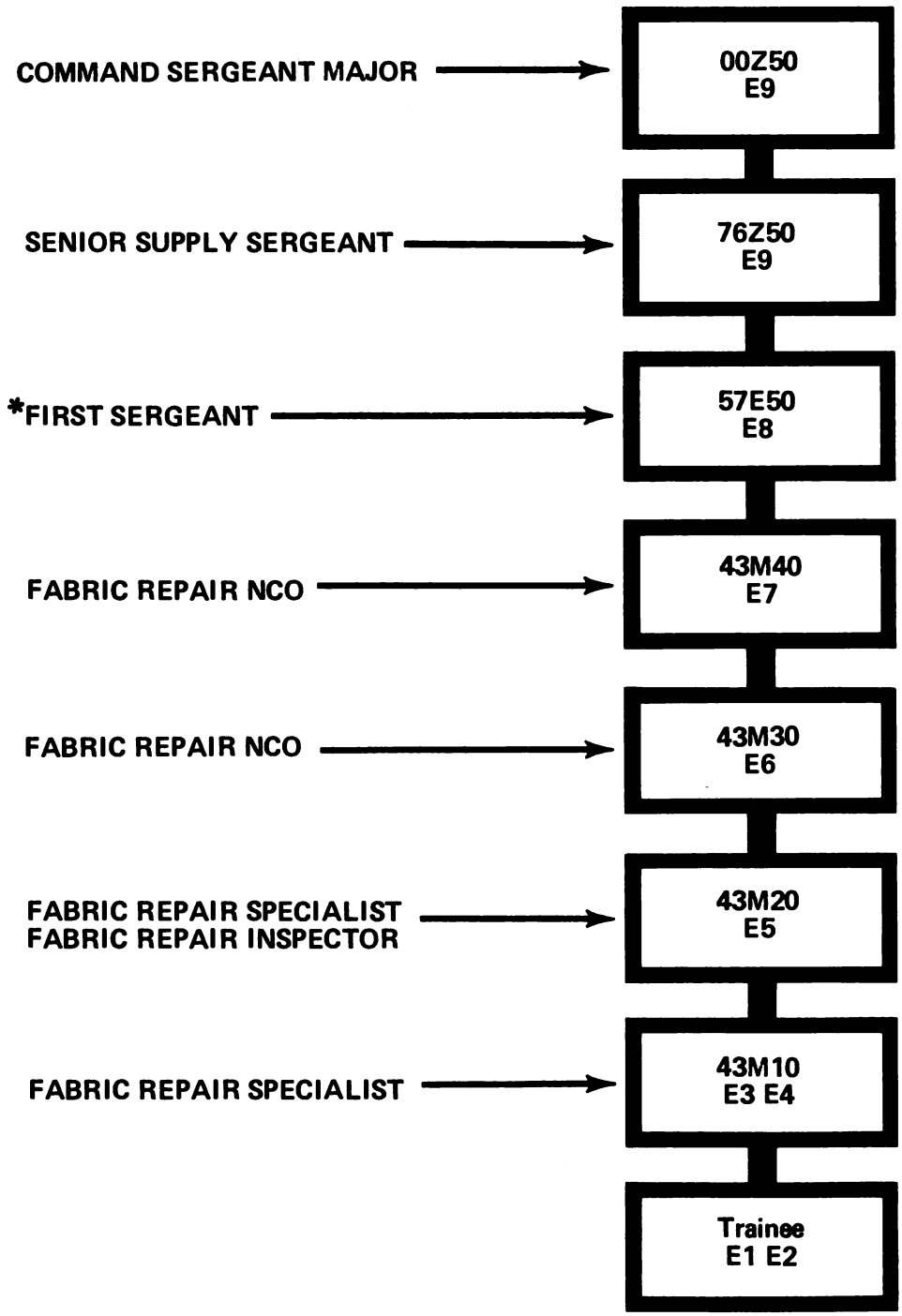
FABRIC REPAIR SPECIALIST
DIAGRAM FOR PROGRESSION IN MOS 43M



*The 43M MOS caps out to the 57E MOS at skill level 5 (E8).

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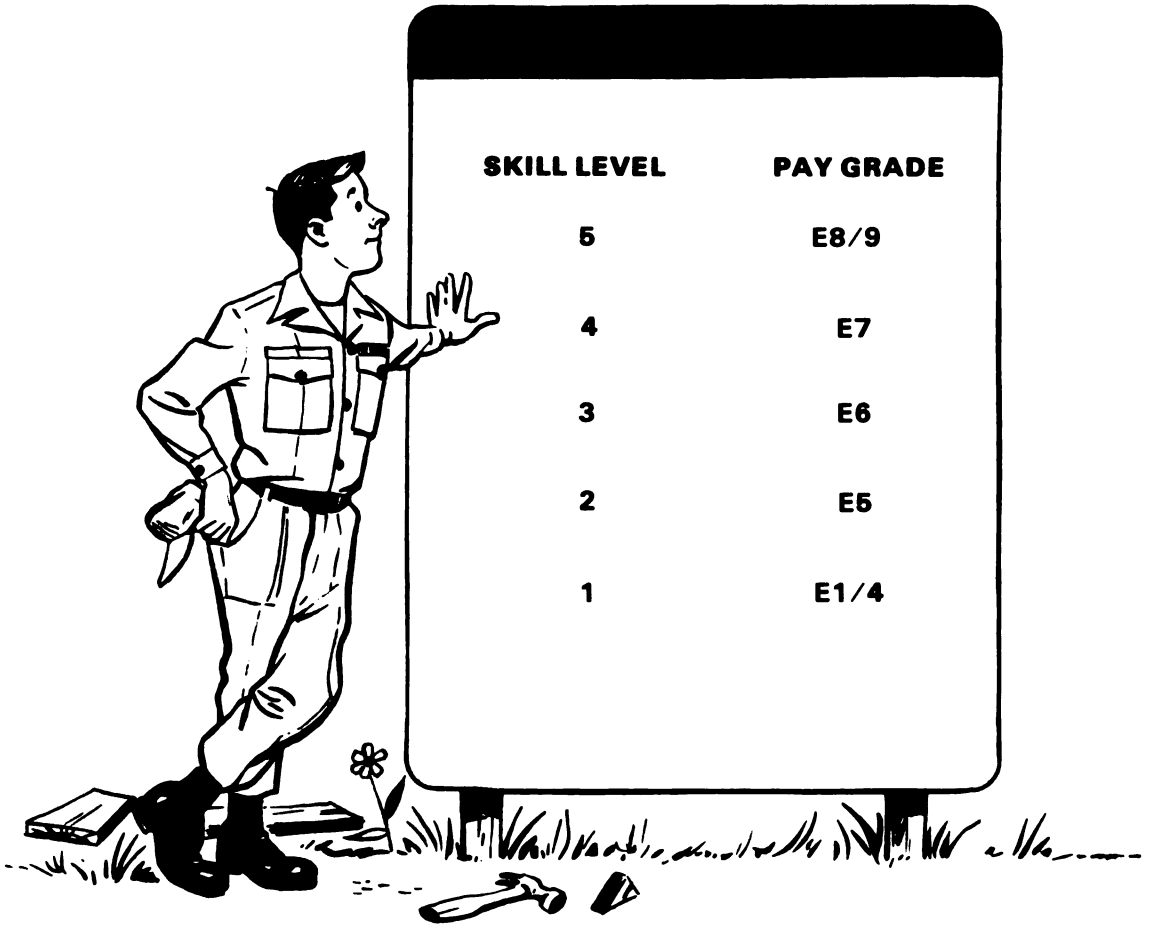
Your pay grade (rank) is directly related to a skill level. All soldiers in 43M have five skill levels in their career progression. These five skill levels and their related pay grades are shown below.



THE SKILL QUALIFICATION TEST (SQT). To qualify for promotion, you must have a formal evaluation called the Skill Qualification Test. You will be scheduled to take the SQT at least every year throughout your Army career, unless unusual circumstances are encountered. This test will measure your ability to perform critical tasks selected from your soldier's manual. The SQT will test you at your current and lower skill levels.

Your SQT will test you on technical tasks for your skill level found in this soldier's manual and on common tasks found in the soldier's manuals of common tasks, FM 21-2 and FM 21-3. As a 43M you are responsible for all tasks at your current and lower skill levels regardless of duty position. Your test will cover selected tasks

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from all duty positions. You must study all tasks at the current and lower skill levels to prepare for your SQT.

Your SQT is made up of tests from each task summary; difficult tasks may have as many as three tests. Tests are scored *GO* or *NO-GO*.

On your SQT, all tasks selected for testing will be from your current and/or lower skill levels. All parts of the SQT will be based on the tasks listed in your soldier's manual or manuals and will test your ability to perform these tasks. *Your SQT may test you in one or more of three ways: SKILL COMPONENT, HANDS-ON COMPONENT, and JOB SITE COMPONENT.*

The **SKILL COMPONENT** is a paper and pencil test made up of written tests. You will be asked questions about tasks you would perform on the job. You will then record your answers on an answer sheet.

The **HANDS-ON COMPONENT** of your SQT will test your ability to perform selected tasks using job-related equipment and material. An example of a Hands-On Component could be to construct and sew simple top patches.

The **JOB SITE COMPONENT** of your SQT may have up to nine tests. This type of test is used for tasks which must be tested by a hands-on method but under conditions that require a long time period, special equipment, or other constraints. In that case, your commander or supervisor will rate you on your Job Site Component before the SQT date.

YOUR SCORE. About 30 days after you have taken your SQT, you will receive an Individual Soldier's Report. The report will show you how well you performed on the test and will identify those tasks on which you received a GO or NO-GO. Your score will place you in one of two categories: VERIFICATION or FAILING.

A *verification* score reveals that you have met or exceeded the minimum technical qualifications to perform at your present skill level.

A *failing* score reveals that you have not made a minimum passing score and can't perform the tasks on which you were tested. You will be required to be retested the following year. If you fail the second time, you may be reclassified to a different MOS or declared ineligible to reenlist. As you can see, the SQT is very important in terms of your Army career. It has a major impact on whether you:

- keep your present MOS and skill level.
- get promoted.
- are reclassified into a different MOS.
- are eligible to reenlist.
- are retained in the Army.

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TRAINING RESOURCES. You must keep your supervisor or training NCO advised of your training and promotion status. It is your responsibility to watch over your career and make sure you get the training you need to advance. In order to do well on your SQT, improve your skills, or get ready for school or a new assignment, several training resources are available to you. Let's look at each one separately and see how it can help you.

DA Publications. DA publications are used as references and job aids to help you improve your present skills and increase your knowledge of the fabric repair field. They include:

- Army Regulations (ARs)
- Field Manuals (FMs)
- Technical Manuals (TMs)
- Department of the Army Pamphlets (DA Pams)
- Training Circulars (TCs)

They are found throughout the Army and should be available at your unit or MOS library. DA publications may be used by themselves or together with other training methods listed in this chapter. A list of common publications for the MOS 43M soldier can be found in appendix A.

Training materials may be one or more of the following types:

- *Programed instruction.* This is usually a special type of text or workbook. Materials in it are presented in a series of steps. Each step teaches a small amount of information and then asks for a response from you. You work through this type of text at your own pace.

Audio materials. These are cassettes or tape recordings that you listen to and use with a text, workbook, or piece of equipment.

Visual materials. These are charts, models, display materials, or pictures that teach you the skills you must know.

Audiovisual materials. The audiovisual lessons that are most often available are audio and visual cassettes that are shown on a Cue See machine. The machine and the cassettes are available through your unit or battalion learning center. Certain lessons may be provided in the form of audio cassette and 35-mm slides when used by large groups.

TRAINING. As an E5 eligible for promotion to E6, you will be trained in the resident Basic Technical Course (BTC) at the Quartermaster School.

HOW TO USE YOUR SOLDIER'S MANUAL. Soldier's manuals are printed as DA field manuals. Each skill level is identified by a number on the outer margin of the page.

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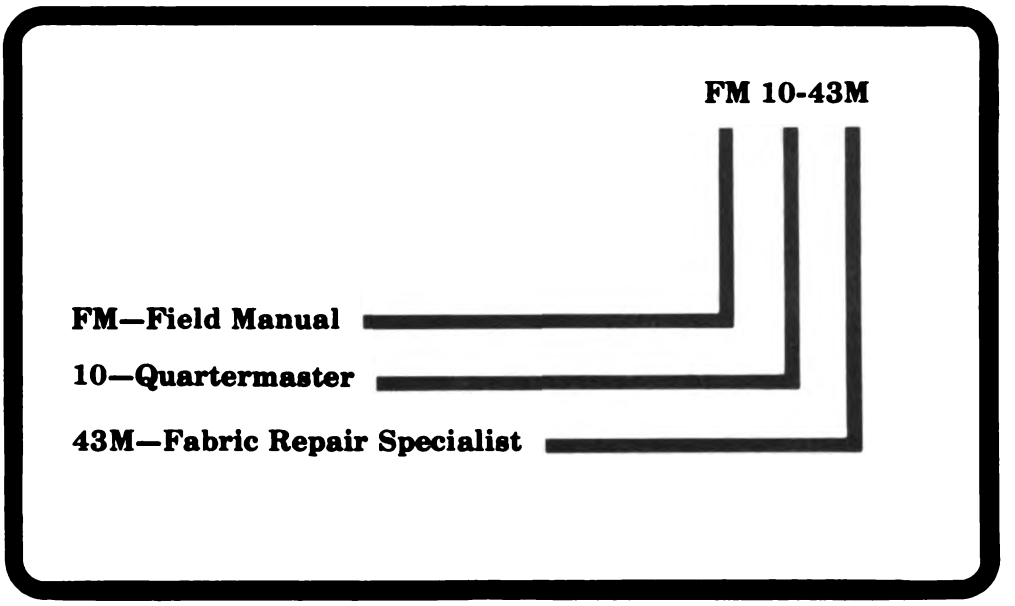
Numbering System. By breaking down the number on the front cover of your soldier's manual, you can tell what the manual is all about as shown below.



Terms Used. The following terms are defined to help you use your soldier's manual.

- *Common Task.* A task that every soldier at a given skill level within each MOS must perform regardless of his duty position. An example is "prevent shock." These tasks are in FMs 21-2 and 21-3 (Soldier's Manual of Common Tasks).
- *Common Technical Task.* A task that every soldier at a given skill level within an MOS performs regardless of his duty position. An example is "set up the M1941 space heater."
- *Conditions.* A description of the setting in which a task must be performed by a soldier. This description includes tools, equipment, materials, assistance available, physical demands, environment, and location.
- *Critical task.* A task that a soldier must perform to complete a mission, do a job, or survive on the battlefield.
- *Duty positions.* The major subdivisions of a skill level based on the jobs that are in unit authorization documents, either Table of Organization and Equipment (TOE) or Table of Distribution and Allowances (TDA).

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For example, the MOS 43M may be subdivided into four skill levels. The four skill levels may be further subdivided into duty positions, each of which consists of many tasks. Duty position is the same as job.

- *Duty position task.* A task that is performed by only those soldiers in a particular job or duty position in a skill level. Duty position tasks are unique to a job while common skill level tasks apply to all jobs in a skill level.

- *GO, NO-GO.* A pass-fail method of testing that does not allow the soldier to be "partially correct." A soldier either meets the standard or does not meet the standard.

- *Job.* The tasks performed by a single worker. If the same tasks are performed by several soldiers, they all hold the same job. As an MOS 43M, you are called a fabric repair specialist but your job may be a fabric and textile repairman or a canvas and web repairman. See duty position above.

- *Military Occupational Speciality (MOS).* A group of duty positions that have closely related duties and require soldiers to have similar qualifications. A soldier assigned to any job within the MOS may be moved to any of the other jobs at the same skill level.

- *Performance measures.* Those steps or behaviors that the soldier must follow and abide by to do the task and that the evaluator observes to make sure the task has been done correctly.

- *Standard.* The standard tells how well, completely, or accurately a task must be performed or a product must be produced. It may be stated in terms of sequence, completeness, accuracy, speed, format, errors, quantity, clarity, tolerance, or other observable and measurable standards.

- *Task.* A task is a self-contained part of a job or duty position which has an identifiable beginning and ending. It can be performed by itself or as part of a job. It is the lowest level of behavior that describes a meaningful function of a job. A task produces a product or result.

STUDY PATTERN. Chapter 2 of this manual contains a list of common technical tasks for skill level 1 and a task summary for each task. Chapter 3 contains a list of duty position tasks for skill levels 1, 2, 3, and 4 and a *task summary* for each task.

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TASK SUMMARY

101-513-0000

TASK STATEMENT:	A statement of what you must be able to do.
CONDITIONS:	The conditions under which you will perform the task, including necessary equipment and materials.
STANDARD:	A statement of how well or how accurately you must perform the task.
PERFORMANCE MEASURES:	A list of what you have to know and do to complete the task.
REFERENCES:	A list of study materials that you can use to learn how to perform the task.

You should already be able to do a number of these tasks. You learned some of them in advanced individual training (AIT). Perhaps you learned some of the tasks while working on the job or in unit training. However, knowledge that is seldom used and skills that are seldom practiced are soon lost. It really doesn't matter where or when you first learned a task. The important question is--HOW WELL CAN YOU DO IT NOW?

Begin studying by scanning all of the task summaries. The condition and standard parts of these summaries are very important to you and your supervisor. In the conditions you are told what you must do. In the standard you are told how well you must complete this task. Your goal should be to perform each task perfectly.

The sentences in the condition and standard allow for some error. It is realized that no one is perfect, so these statements tell you what your minimum performance of each task must be for any period of time and any amount of work with any number of errors.

A formal training program may be set up for you in your unit. Your commander, first sergeant, training NCO, or supervisor will use this soldier's manual and a job book to design unit training programs. During unit training, the job book will be used to record whether or not you can perform a task. Your supervisor will have a copy of your job book. Each job book contains complete lists of technical (MOS-related) tasks under duty position headings.

Your supervisor will check off your task performance as either a "GO" (can do the task) or a "NO-GO" (cannot do the task) in your job book. As you and your supervisor go over the list of tasks which your supervisor has marked, you will discover which tasks you can do well or those that require more practice. This information will help you develop your individual study/plan for your Skill Qualification Test. In this way, your progress can be recorded and problems can be analyzed and solved.

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PRACTICE. After you and your supervisor have found your problem areas, practice the performance measures that can help you learn the task. The study references listed at the end of each task summary should be available to you at your worksite and through your installation publications center. Also--don't forget the training materials that are available to you through your unit. Contact your unit training NCO in order to get these materials. (Types of materials available are discussed on page 1-6.) Here are some study suggestions that work:

- The way to study is simply to begin.
- Budget your time. Set aside a definite time for study each week.
- Study with a buddy or a group occasionally.
- Test yourself frequently. Skills that are seldom used are soon lost.

ASK! ASK! ASK! ASK! As important as formal programs are, they aren't enough. Another important source of information is your supervisor, first sergeant, or sergeant major. If you don't know or don't understand something, ASK for help. Passing on knowledge and skills to younger soldiers is a very important task at the skill level of a first sergeant or sergeant major. He or she knows the system from the inside--how to work with it and how to make it work for you. To ignore this resource is to ignore the most important training aid of all: EXPERIENCE.

EPMS CAREER LADDER. As you can see, the Army is just as eager to promote you as you are to be promoted. Look at the EPMS career ladder on page 1-11 and the five skill levels in MOS 43M, 57E, and 76Z. Each skill level represents a division of the pay grades, ranks, and jobs from E1 through E9.

The RIGHT side of the ladder shows you the Army training and courses that will help you move up the promotion ladder. The LEFT side shows SQTs 1, 2, and 3--the points in your career at which the Army will measure the skills you have learned.

With the Senior Technical Course training, you may advance to 76Z50 (E8 and E9) (senior supply sergeant); with the training at the Sergeants Major Academy, you may advance to 00Z50 (E9) (command sergeant major).

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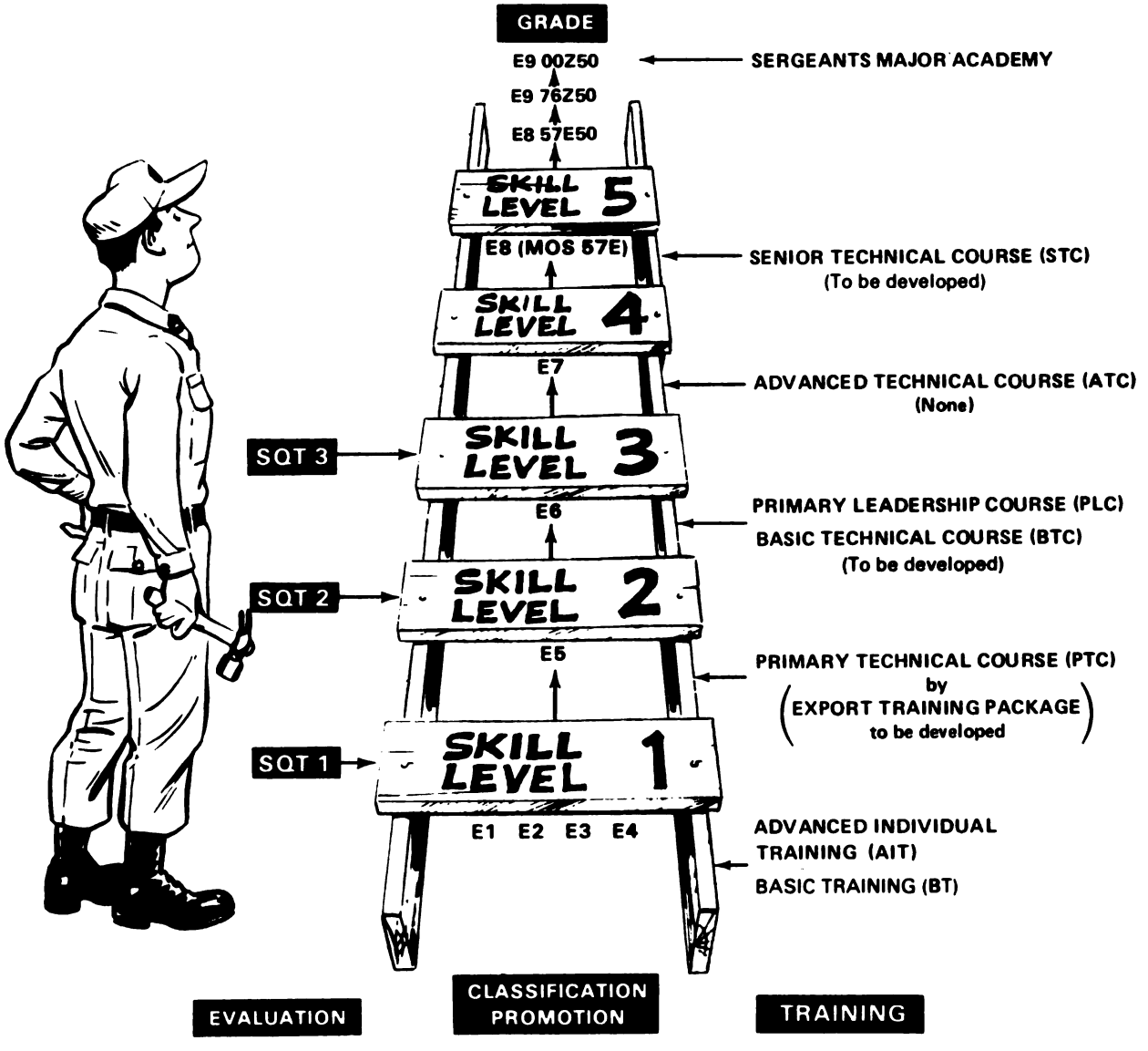
EPMS Career Ladder



MOS 43M

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PROMOTION CHECKLIST

Here is a handy list of things you should do to qualify for promotion.

☐ REVIEW the duties for your MOS at skill levels 1, 2, 3, and 4.

☐ STUDY all reference material listed in the task summaries in this manual and FMs 21-2 and 21-3 (Soldier's Manual of Common Tasks).

☐ CHECK with your training NCO about training courses. The training NCO can guide you in selecting exportable training material for your Army career.

☐ BE A GOOD SOLDIER. Perform well in your duty position. This will help you to get a good evaluation.

☐ KEEP your knowledge and skills sharp by reviewing the tasks from your soldier's manual that you have learned to do.

☐ WHEN you get your SQT Notice and Job-Site Component (SNJSC) booklet, study the task summaries that are listed in it. Remember: These are the only ones that will appear on the SQT, so go to the appropriate section of this manual and find the critical tasks you must master.

☐ TAKE your SQT. This test will determine if you will be given the skill level rating which you must have before you are promoted.

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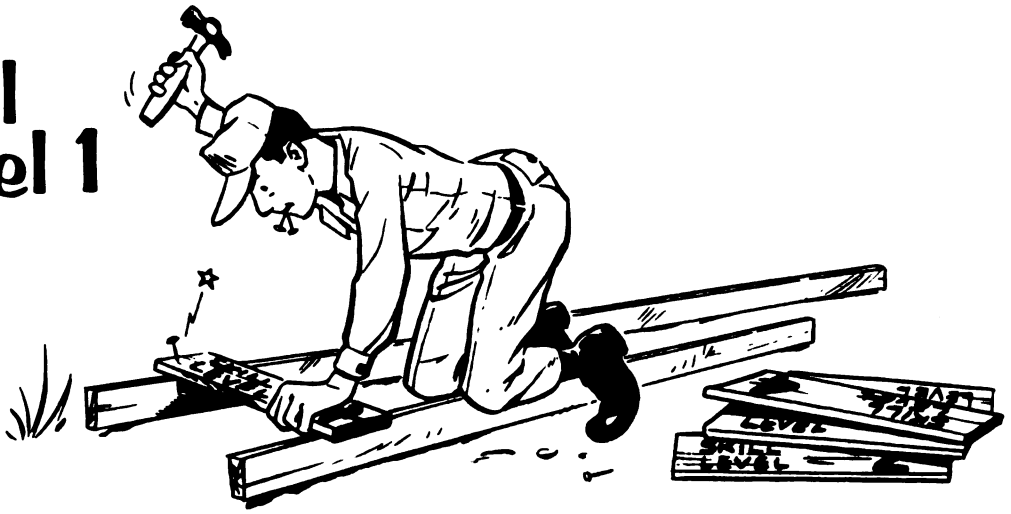
Skill Level 1



SKILL LEVEL 1. It is to your advantage to study hard and to learn the basic duties of this skill level. You are laying the foundation for future advancement, and the skills you acquire during this period of training will be of value to you during your entire Army career.

AR 611-201 is the dictionary of MOS s for enlisted personnel. It contains complete information about the duties and skill levels of the Fabric Repair Specialist. Areas of responsibility and duties for skill level 1 as identified by AR 611-201 are:

Inspects, tallies, marks, tags, and segregates textile, canvas, and webbed items received for repair. Determines repair requirements. Sews, patches, darns, and bastes worn or damaged fabrics. Measures and marks uniforms for alterations. Alters, sizes, and repairs uniforms, attaches unit patches, name tapes, and chevrons. Constructs and attaches patch pockets, pocket linings, belt loops, collars, cuffs, and jacket epaulets. Cuts, binds, reinforces, repairs or remakes buttonholes, and replaces buttons. Replaces fasteners and zippers. Patches and darns holes and tears. Fabricates and repairs canvas covers, paulins, and other items. Repairs or replaces loops, flaps, ties, and stovepipe openings on tentage. Matches, constructs, and applies patches and applies binding. Attaches or replaces grommets and snap fasteners, inserts eyelets, and attaches other types of hardware to canvas or webbed equipment and tentage. Operates sewing, darning, and button machines. Makes operator adjustments and replaces minor parts, using organizational tools and equipment. Cleans and lubricates equipment and performs preventive maintenance services before, during, and after operations. Loads, unloads, receives, stores, and inventories supplies and equipment. Sets up, inspects, and operates generator and performs preventive maintenance during field operations.

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Skill Level 2

SKILL LEVEL 2. When you advance to skill level 2, you may be performing as a firstline supervisor, depending on the duty position to which you have been assigned.

AR 611-201 describes the duties and tasks that are required for your skill level in the Fabric Repair Specialist Field. Although you may not be performing all these duties, you need to be aware that you will have to perform tasks or duties other than those on the critical task list. AR 611-201 identifies the skill level 2 duties as follows:

> **Repairs textile and canvas items, webbed equipment, and clothing or performs quality assurance inspections. Performs duties shown in preceding level of skill and provides technical guidance to lower grade personnel. Inspects, classifies, and determines repairability of textile, canvas, and webbed items received for repair. Inspects items that cannot be repaired to insure that all salvagable parts have been removed.**

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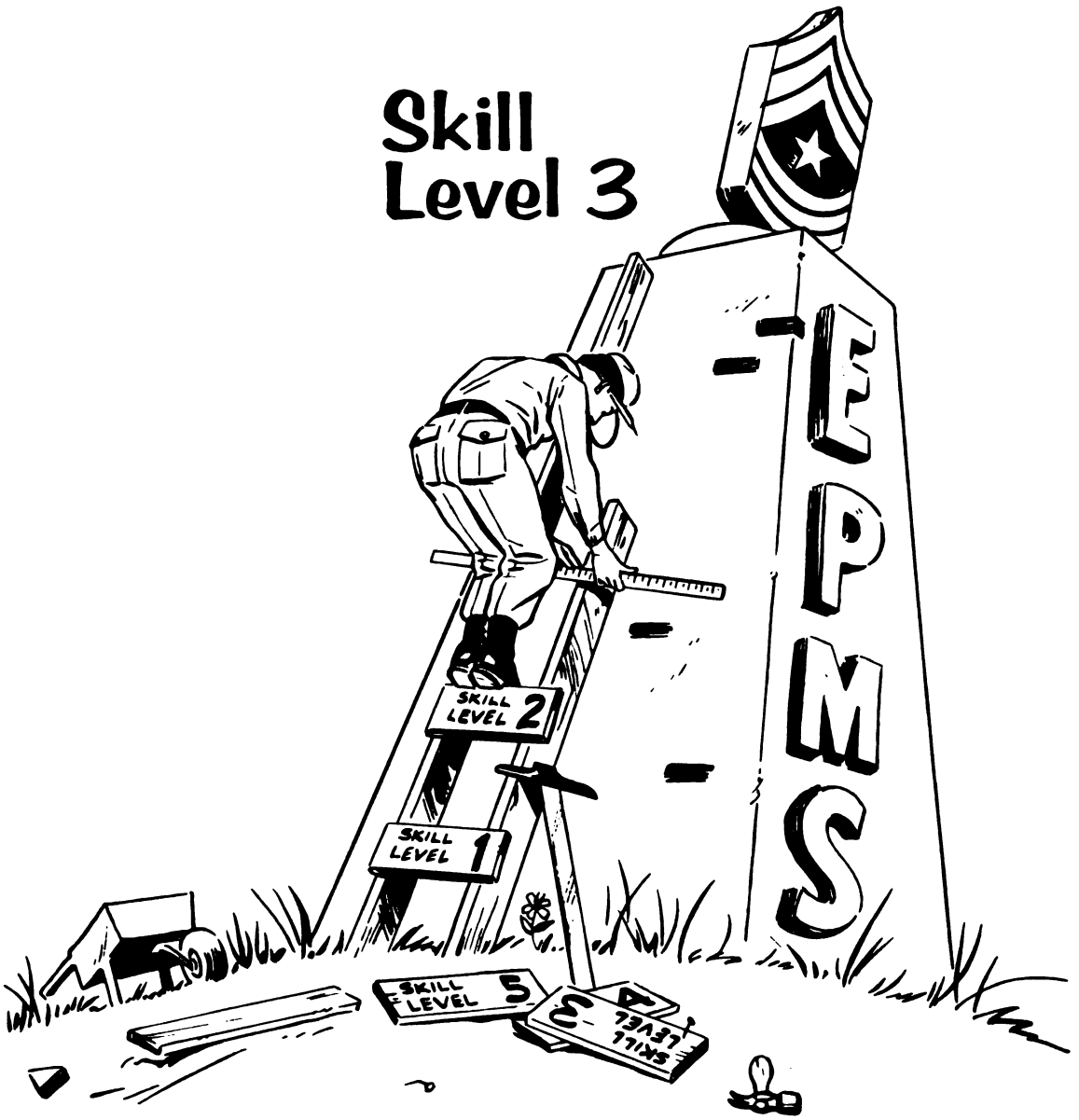

SKILL LEVEL 3. AR 611-201, Enlisted Career Management Fields and Military Occupational Specialties, describes the duties involved at your skill level. You may not be performing all of these tasks now, but you need to be aware that you will have to perform tasks other than those on the critical task list.

The areas of responsibility are Fabric Repair, Supervision, Management, and Instruction; Fixed or Mobile Fabric Repair Shop Operations; and Supply.

Supervises small- and medium-size textile and canvas repair operations. Supervises and coordinates operations and preventive maintenance activities in mobile and fixed textile and canvas repair shops. Coordinates maintenance requirements with supporting units. Establishes quality control standards. Establishes work priorities, prepares work schedules, and distributes workload. Assigns per-

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sonnel to work positions, supervises workflow, and inspects completed work for accuracy and quality control. Plans and conducts on-the-job training programs. Evaluates personnel performance, counsels personnel and prepares evaluation reports. Estimates supply requirements, and requests, stores, safeguards, and issues supplies and equipment. Stores, safeguards, and issues repaired items. Maintains hand receipts and document registers. Determines and disposes of excess and unserviceable items. Prepares equipment schedules and operation, personnel, and administrative reports. Maintains records of cost data and expenditures. Inspects area to insure clean, orderly, and safe working conditions. Supervises maintenance and placement of repair trailers in mobile units. Inspects generators for serviceability and damage.

SKILL LEVEL 4. At pay grade E7 you will supervise large-size textile and canvas repair operations and perform the duties that are described at skill level 3 of this manual.

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HOT LINE. The Quartermaster School stands ready at all times to help. If you have a question about EPMS or need additional help in performing your duties, call the Quartermaster School. If technical personnel are not available, your request will be automatically recorded, and you will receive your answer by telephone within a short while. To call the Quartermaster School, you can use either the commercial or AUTOVON number.

COMMERCIAL: (804) 734-3767 (EPMS)
AUTOVON: 687-3767 (EPMS)

If you have permission to use a military class AA telephone, you can use the AUTOVON number to call the Quartermaster School. Remember that you will have to pay for the cost of the call to the Quartermaster School if you use a commercial (public) telephone.

ALSO:

You can write a letter to the Quartermaster School and have your questions answered by a mailed reply. Address:

US ARMY QUARTERMASTER SCHOOL
ATTN: ATSM-TDV-FS
FORT LEE, VIRGINIA 23801

GOT AN IDEA TO PASS ON? After you have read the introduction to this soldier's manual and have used the task summaries to learn your job, the Quartermaster School would like to know your ideas on how to make your manual better or easier to use. If you think that any part of this manual does not show things the way they really are in the field, LET US KNOW.

Fill out the questionnaire in appendix D of this manual and mail it back to the Quartermaster School. (No postage will be necessary.) In making your suggestions, add them to the comment section of the questionnaire. If you need more space, write your remarks on blank paper and inclose it with your questionnaire.

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CHAPTER 2

COMMON TECHNICAL TASKS, SKILL LEVEL 1

TASK NUMBER	TITLE	PAGE
101-514-1901	Set up the M1941 space heater.	2-2
101-514-1903	Pitch a general-purpose medium tent.	2-9
101-514-1905	Operate the M1941 space heater.	2-13
101-514-1906	Dismantle the M1941 space heater for movement.	2-16

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■ 101-514-1901

SET UP THE M1941 SPACE HEATER

CONDITIONS: Your immediate supervisor tells you to set up the M1941 space heater. You will be assisted by a four-man detail from the supported unit. This is performed in cold weather, in garrison, and in simulated or actual combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: M1941 space heater with accessory tools and components and sandbox.

STANDARD: For each M1941 space heater you set up, you must complete all of the performance measures within 25 minutes, without error.

PERFORMANCE MEASURES:

1. Position the heater base within a tent.

a. Place the base in or on one of the following:

(1) in a bare earthen area.

(2) in a prefabricated sandbox.

(3) on a pile of stones.

(4) on a stack of brickbats.

1

b. Align the heater base directly under a stovepipe opening in the tent roof.

c. Clear an area that is free of combustible material 4 feet around the heater location.

2. Assemble the heater body. (See figure 1901.1.)

a. Place the adapter ring on the heater base.

b. Set the oil pot burner in the adapter ring so that the fuel inlet pipe faces the ash door opening in the heater base.

NOTE: *The fuel inlet pipe consists of a nipple and reducer and should already be installed on the oil pot burner. If it has not been installed, install it before setting the oil pot burner in the adapter ring. Connection should be tightened with the V-jaw wrench until the connection is airtight and leakproof.*

c. Turn the adapter ring to the right until it engages the locking clips on the oil pot burner.

d. Make sure the inlet pipe is at right center of the ash door opening.

e. Install the flame spreader in the center of the oil pot burner.

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f. Attach the float valve nipple to the smaller end of the pipe reducer located on the oil pot burner.

g. Tighten this connection with the V-jaw wrench until the following occur together.

(1) Connection is airtight and leakproof.

(2) Float valve is in a level position.

(3) Flow adjustment knob is facing up.

h. Place the top of the space heater on the adapter ring.

i. Install the lid on the space heater top lid opening.

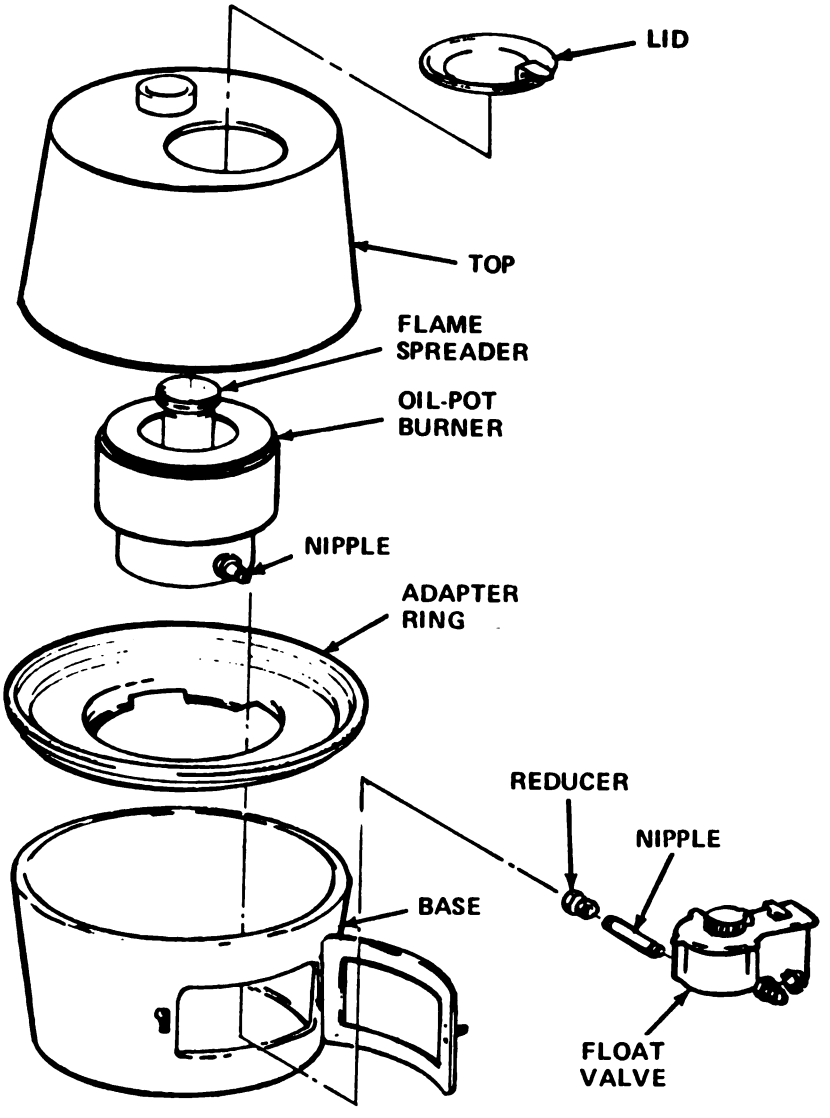

Figure 1901.1. Heater body assembly.

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3. Assemble and install the air-conditioning and heating pipes (smoke-stack).

a. Assemble each of the six pipe sections as follows:

(1) Join the formed edges of a curved sheet of metal to form a cylindrical pipe. (See figure 1901.2.)

CAUTION: ***Hold the sheet metal securely while curling it to keep it from slipping and cutting you.***

(2) Insert a split rivet, from the inside, through each of the three holes in the pipe section.

(3) Spread the tines of each rivet and hammer them flat.

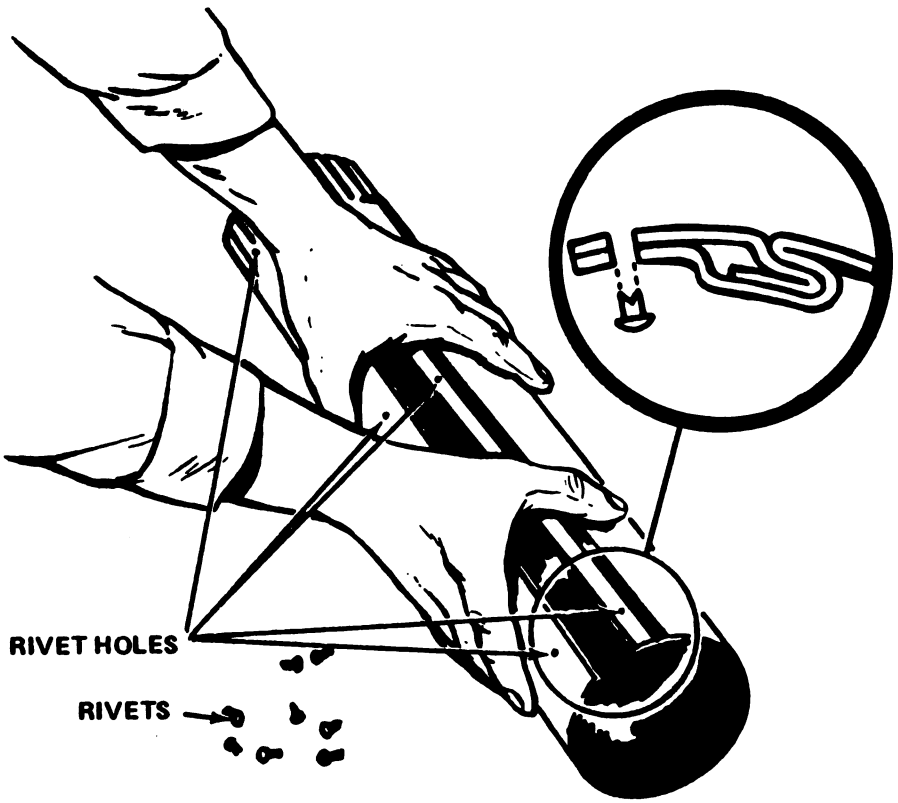

Figure 1901.2. Pipe section assembly.

b. Install a tent shield (with an elliptical hole) in the pipe opening in the tent roof. (See figure 1901.3.)

NOTE: ***Newer tents have a built-in tent shield, and step 3b will not be needed.***

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c. Install the smokestack as follows:

(1) Join the six pipe sections to form a long, single pipe.

(2) Feed the pipe up through the tent shield in the tent roof. (See figure 1901.3.)

(3) Place the smooth female end of the pipe over the steel collar on the heater top.

(4) Twist the pipe back and forth until it is seated tight on the steel collar.

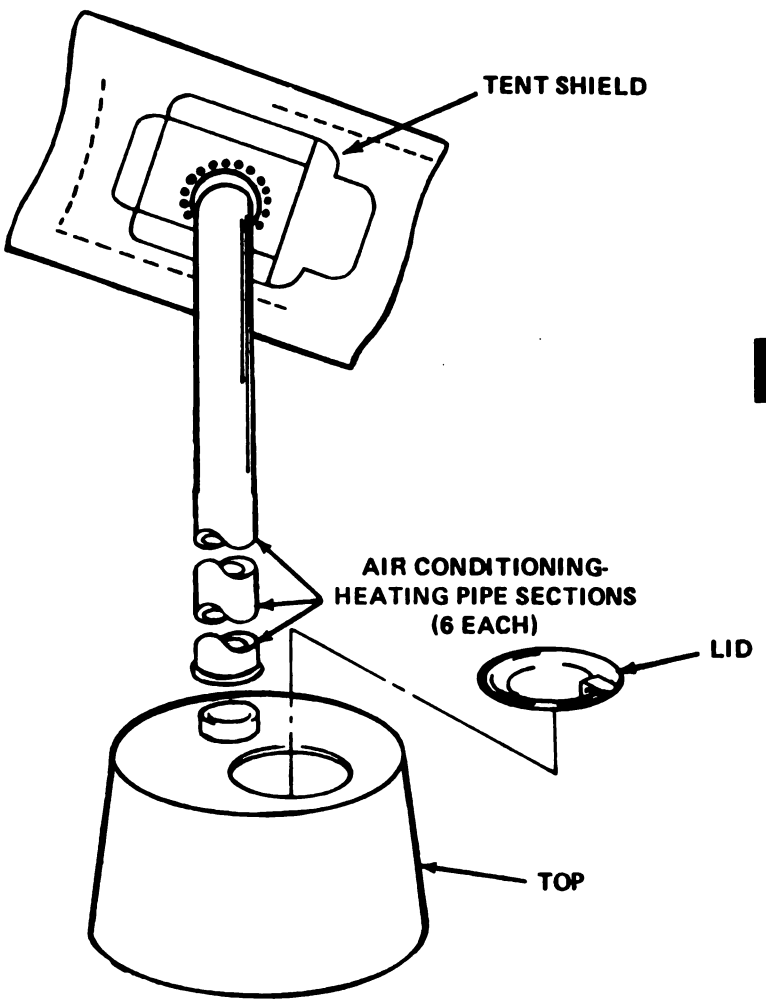

Figure 1901.3. Tent shield and smokestack installation.

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d. Install the draft diverter on top of the smokestack. (See figure 1901.4.)

e. Anchor the draft diverter in place with the attached guy ropes. (See figure 1901.4.)

CAUTION: *Install the guy ropes radially so that they do not come in contact with the smoke pipe. The ropes should be installed and anchored so that the smokestack does not fall when the tent moves.*

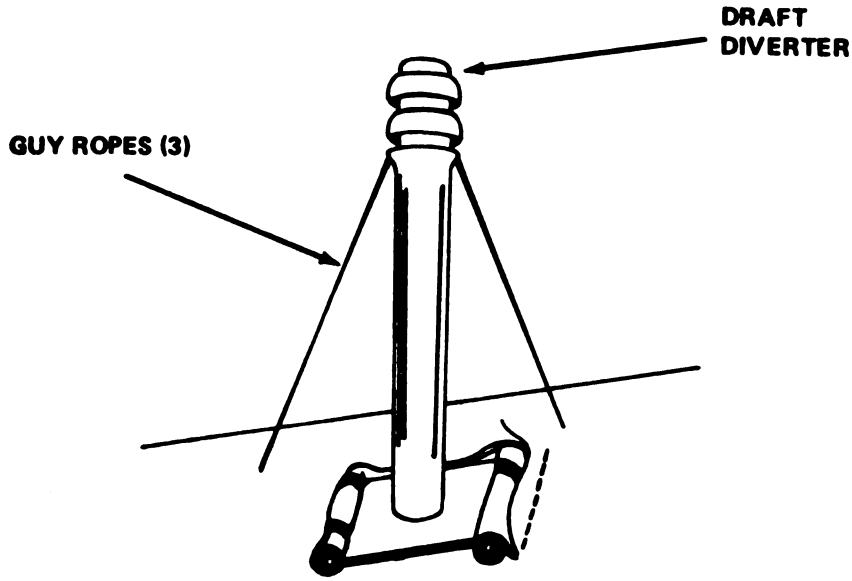

Figure 1901.4. Draft diverter installation.

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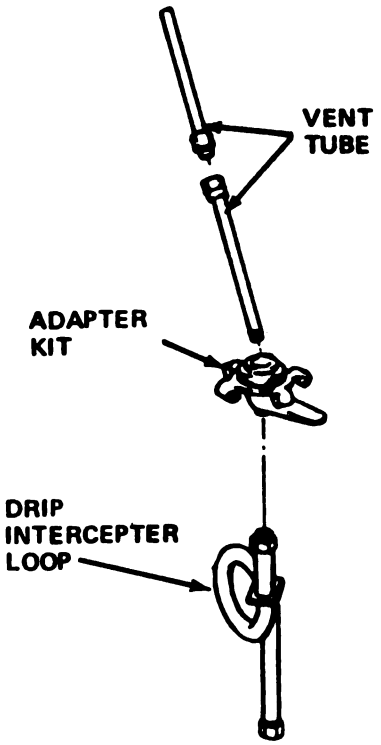

4. Install a 5-gallon liquid fuel supply.

a. Assemble the fuel can adapter kit. (See figure 1901.5.)

(1) Connect the two pieces of vent tube together and tighten.

(2) Screw the joined tube into the adapter body, keeping the airhole furthest from the adapter.

(3) Connect the drip interceptor loop to the adapter body and tighten.

Figure 1901.5. Fuel can adapter kit assembly.

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b. Release the adapter cam and hold the cam free in a vertical position.

c. Insert adapter into a full 5-gallon can of liquid fuel.

NOTE: *Cam must be kept in the free position and toward the handles of the fuel can.*

d. Screw adapter plug body down tightly into can opening to keep can from leaking.

e. Press the cam down toward the handles to seal the joints.

f. Attach the male end of one fuel hose to the drip interceptor loop of the adapter kit. (See figure 1901.6).

g. Tighten this connection with the open-end wrench until it is airtight and leakproof.

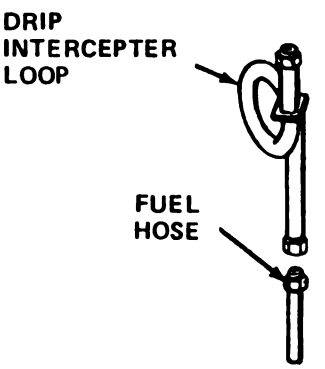

Figure 1901.6. Fuel hose connection to interceptor loop.

h. Attach the opposite female end of the hose to the male fuel inlet fitting on the float valve. (See figure 1901.7.)

i. Tighten this connection with the open-end wrench until it is airtight and leakproof.

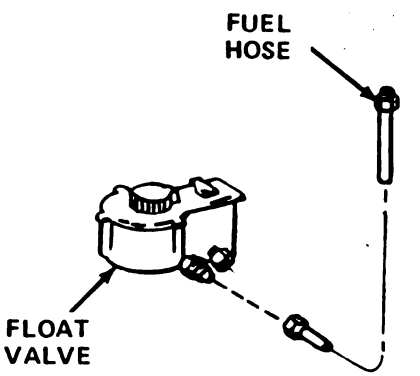

Figure 1901.7. Fuel hose to float valve connection.

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j. Attach the male end of the other fuel hose to the overflow fitting under the center of the float valve. (See figure 1901.8.)

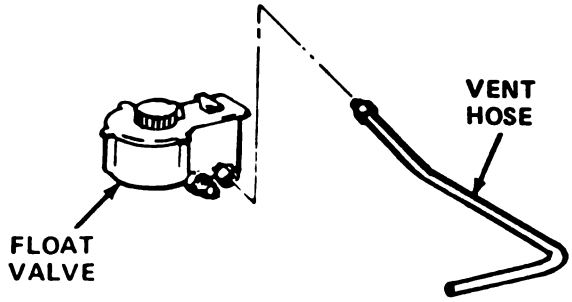

Figure 1901.8. Vent hose to float valve connection.

k. Tighten this connection with the open-end wrench until it is airtight and leakproof.

l. Position the other end of this hose downward and run it to a safe outside location.

NOTE: *While the heater is operating, the second hose is attached so that it can carry to a discharge area a safe distance from the heater any fuel that may overflow in the float valve.*

1

m. Check to make sure that the inlet shutoff knob on the float valve is in the OFF position.

n. Invert the fuel can on a support at least 1 foot but no more than 8 feet above the float valve.

o. Visually recheck all fuel connections for signs of leaks.

p. Make any corrections needed to correct fuel leaks.

REFERENCES: **TM 10-4500-200-13 (Operator's, Organizational and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List): Heaters, Space: Radiant-Type Portable), chapter 2.**

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■ 101-514-1903

PITCH A GENERAL-PURPOSE MEDIUM TENT

CONDITIONS: Your immediate supervisor tells you to pitch a general-purpose medium tent. You will be given help by a four-man detail from the supported unit. (A tent with pins and poles has been offloaded from the truck and placed on the ground.) This task is performed in garrison and in simulated or actual combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: general-purpose medium tent, pins and poles, and wooden mallets.

STANDARD: For each general-purpose medium tent you pitch, you must complete all of the performance measures within 40 minutes, without error.

PERFORMANCE MEASURES:

1. Lay out the tent. (See figure 1903.1.)

   a. Place the tent in position on the ground so that the corners are square.

   b. Open the slide at the tent conrners.

2. Lay out poles and pins.

   a. Place the 16-inch pins at corners of tent.

   b. Insert the eave poles and door poles, and place upright poles in position.

   c. Drive the tent pins in the ground.

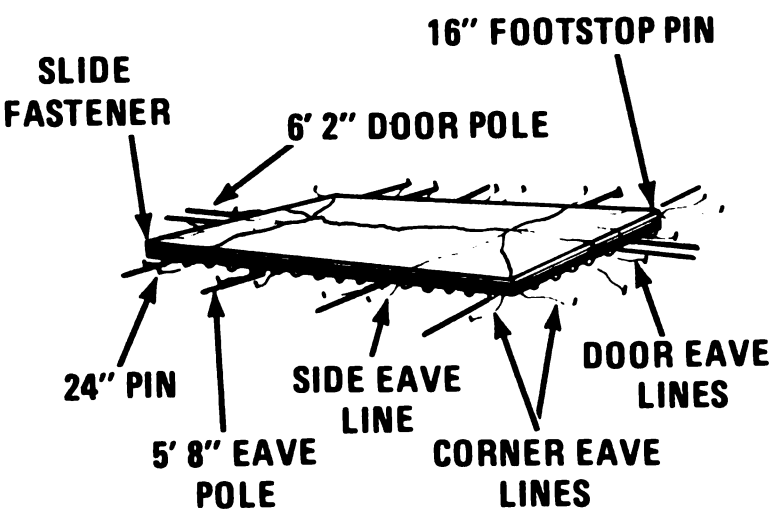

Figure 1903.1. General-purpose medium tent laid out.

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3. Raise the tent with poles.

a. Attach all the guy lines to 24-inch pins.

b. Raise the eave and door poles. (See figure 1903.2.)

c. Connect the two center upright poles to the ridge pole.

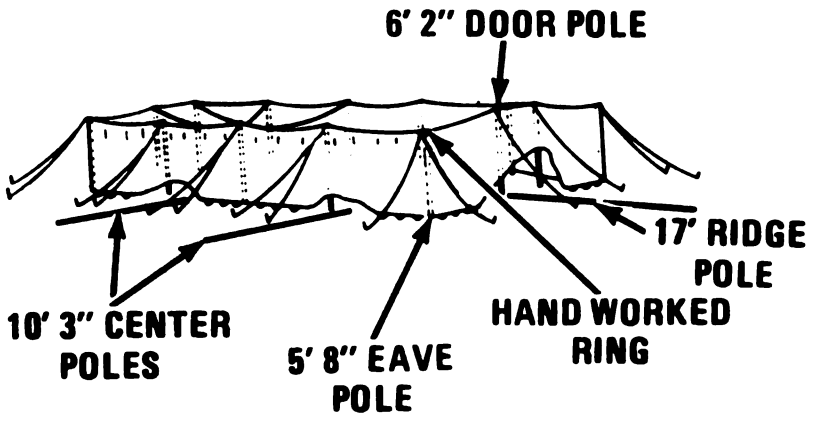

Figure 1903.2. Tent with side and door poles raised.

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d. Raise the two center upright poles with the ridge pole attached, to a vertical position. (See figure 1903.3.)

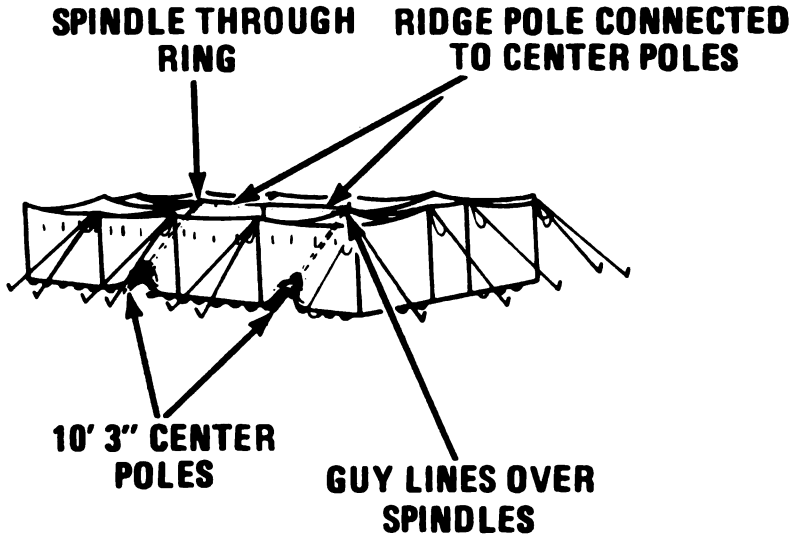

Figure 1903.3. Center poles being raised.

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4. Secure and straighten tent. (See figure 1903.4.)

a. Adjust the ventilator flap lines, and tie them to the corner eave poles.

b. Straighten all the poles and tighten all lines until the tent is smooth.

c. Tie the tie tapes at inside corners of the tent.

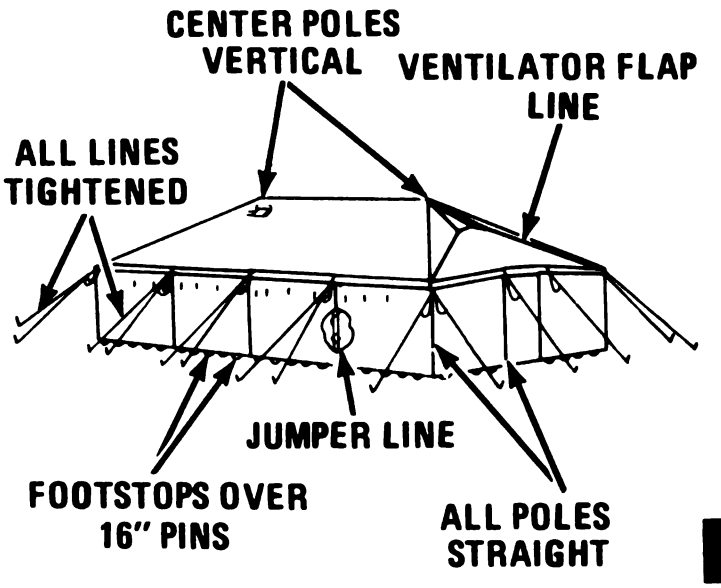

Figure 1903.4. Tent secured and straightened.

5. Trench around tent. (See figure 1903.5.)

a. Dig trench all around tent.

b. Cut trench no more than 5 inches straight down, just outside the footstop pins.

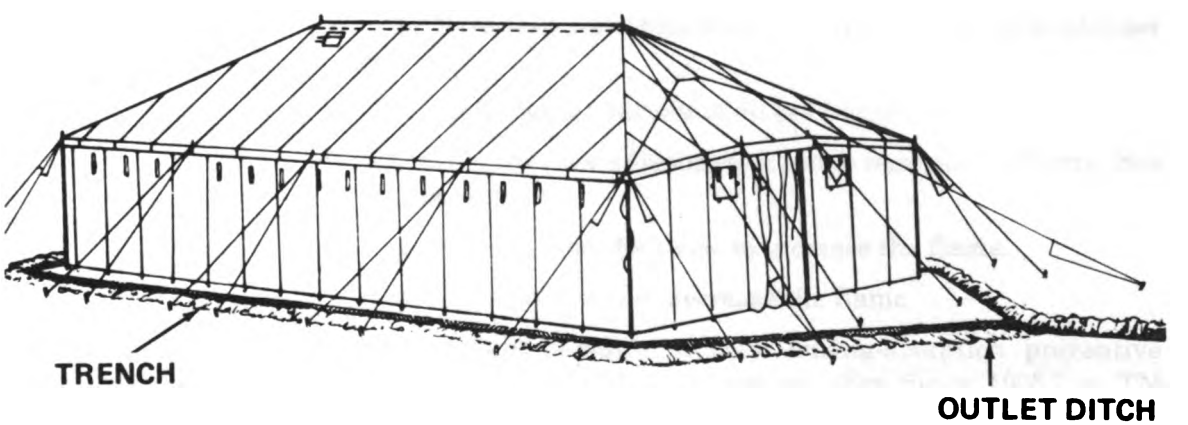

Figure 1903.5. Trenched general-purpose medium tent.

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REFERENCES: **TM 10-8340-211-13 (Operator's, Organizational, and Direct Support Maintenance Manual: Tent, General Purpose), chapter 4.**

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■ 101-514-1905

OPERATE THE M1941 SPACE HEATER

CONDITIONS: Your immediate supervisor tells you to operate the M1941 space heater. This task is performed in garrison and in simulated or actual combat under cold weather conditions. Duty uniform will be worn. Materials and equipment required: M1941 space heater with accessories, diesel fuel, matches, scratch paper, and DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

STANDARD: For each M1941 space heater you operate, you must complete all of the performance measures within 50 minutes, without error.

NOTE: *This time does not include the 30 to 40 minutes needed for the space heater to cool down.*

PERFORMANCE MEASURES:

1. Perform operator or crew before-operation preventive maintenance checks and services. (See figure 1905.1 or TM 10-4500-200-13, page 2-13.)

a. Check heater for correct assembly.

b. Check heater for fuel leaks.

c. Check draft diverter and tent shield for correct installation.

d. List on the DA Form 2404 deficiencies that you cannot correct, and turn in the form to the organizational maintenance section.

2. Start the heater.

a. Turn ON/OFF valve knob to ON position.

b. Turn flow adjustment knob counterclockwise to number 9.

c. Ignite fuel at bottom of oil pot burner.

3. Move the flow adjustment knob to regulate the flame. (See figure 1905.2.)

a. Turn counterclockwise to increase the flame.

b. Turn clockwise to decrease the flame.

4. Perform operator or crew during-operation preventive maintenance checks and services. (See figure 1905.1 or TM 10-4500-200-13, page 2-13.)

a. Check pipe joints to make sure they are not loose and there are no leaks.

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b. Listen for unusual noises.

c. Check fuel line connections for fuel leaks.

d. List on the DA Form 2404 deficiencies that you cannot correct, and turn in the form to the organizational maintenance section.

Preventive Maintenance Checks and Services

B - Before operation A - After operation M - Monthly
D - During operation W - Weekly Q - Quarterly

Item Number	Interval: Operator - Daily B	D	A	W	Org M	Q	Item to be inspected	Procedure	Reference
							M1941 TYPE I		
1	X						Space heater	Inspect for proper installation	para 2-5
2	X		X				Grate	Inspect for level condition and that draw grate operates smoothly	para 2-5 & 2-7
				X				Inspect for cracked or warped condition and replace as required.	para 2-33
3	X						Air conditioning-heating pipe	Inspect pipe sections for security	para 2-5
		X	X				(smoke pipe)	Inspect pipe joints for loose fit and leaks	para 2-5
				X				Remove pipe sections for cleaning Replace as required Make sure pipe sections fit tight	para 2-26
4	X						Tent shields	Inspect for proper installation	para 2-7
5	X		X				Damper	Inspect for proper operation	para 2-7
6	X						Shovel, shaker and poker	Make sure accessories are available	
		X					(Shaker and poker)	Use sparingly	
			X				Accessories and heater lid	Make sure accessories and heater lid are available	
7		X					Ashes and clinkers	Remove every 3 to 4 hours	para 2-13
			X	X				Remove all ashes and clinkers	para 2-13
8				X			Spark arrestor	Inspect for accumulation of soot - clear	para 2-5
9				X			Space heater assembly	Apply medium oil to all parts showing signs of rust	
							M1941 TYPE II		
1	X						Oil burner	Inspect for proper installation	para 2-5
					X			Inspect for dirt on burner bottom	para 2-34
		X						Listen for noisy burner operation	
				X				Clean soot and carbon from small hole in burner pot	para 2-34
				X				Clean dirt from bottom of burner	para 2-34
2	X	X	X				Air conditioning-heating pipe	Inspect pipe sections for security and evidence of leaks	para 2-5
				X				Remove pipe sections for cleaning Replace as required Make sure pipe sections fit tight	para 2-26
3	X		X				Damper	Inspect damper for proper operation	para 2-27
4	X						Float valve	Inspect for level position	para 2-31
	X	X						Inspect for leaks	
			X	X				Inspect for secure mounting and that controls are undamaged	para 2-5
				X				Inspect control for proper operation	para 2-9
				X				Remove strainer, clean and replace	para 2-31
5	X						Tent shields	Inspect for proper installation	para 2-7
6	X						Guy lines	Adjust guy lines attached to draft diverter	para 2-23
7	X						Adapter kit	Inspect for proper assembly and leaks	para 2-28
8	X	X					Fuel hoses	Inspect hoses for proper routing	para 2-30
		X						Inspect overflow hose for evidence of fuel overflow	para 2-31
9	X	X	X	X			Fuel can and hose	Inspect for leaks	para 2-31 para 2-30

Figure 1905.1. Operator or crew preventive maintenance checks and services.

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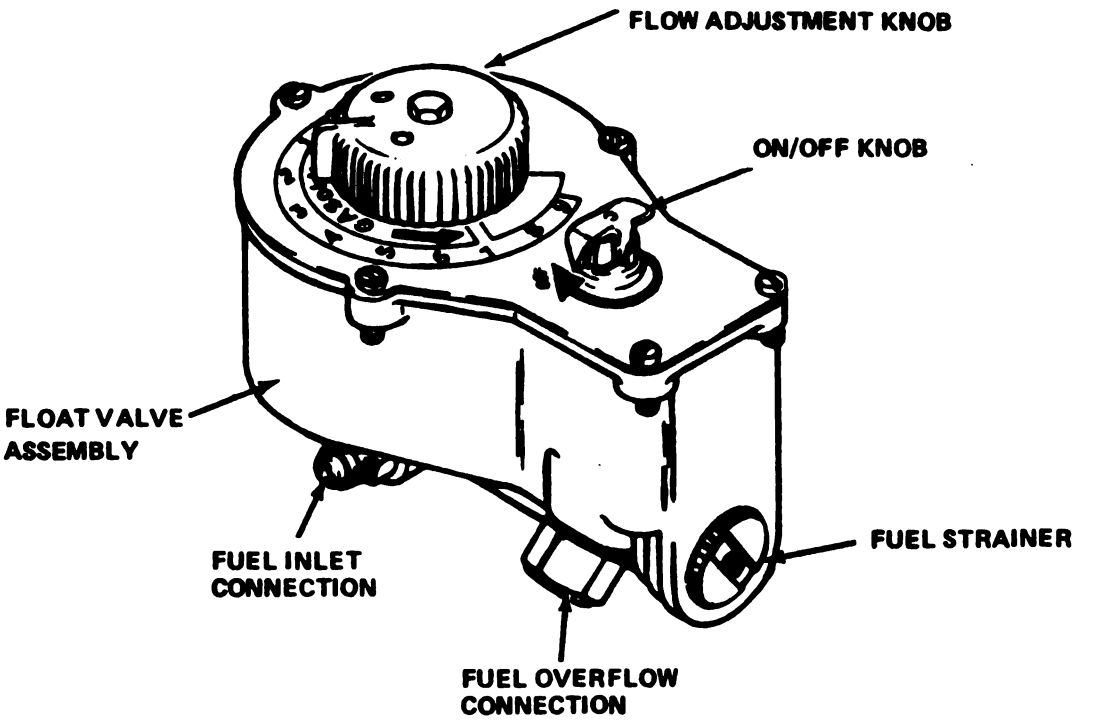

Figure 1905.2. Float valve controls and parts.

5. Turn off the heater.

a. Move flow adjustment knob fully clockwise to zero.

b. Move ON/OFF valve knob to OFF position.

c. Allow 30 to 40 minutes for the heater to cool off before you touch it.

6. Perform operator or crew after-operation preventive maintenance check and services. (See figure 1905.1.)

a. Remove soot and carbon from components.

b. Clean float valve strainer.

c. Apply medium oil to all metal parts.

d. Check for damage.

e. List on the DA Form 2404 deficiencies that you cannot correct, and turn in the form to the organizational maintenance section.

REFERENCES:

TM 10-4500-200-13 (Operator's, Organizational, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List): Heaters, Space: Radiant-Type, Portable M1941), chapter 2.

TM 38-750 (The Army Maintenance Management System (TAMMS)), chapter 3.

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■ 101-514-1906

DISMANTLE THE M1941 SPACE HEATER FOR MOVEMENT

CONDITIONS: Your immediate supervisor tells you to dismantle the M1941 space heater. You will be given help by a four-man detail. (Heater has been cooled for 30 minutes.) This task is performed in garrison and simulated or actual combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: M1941 space heater, clean rags, fuel oil, and DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

STANDARD: For each M1941 space heater you dismantle, you must complete all of the performance measures within 20 minutes, without error.

PERFORMANCE MEASURES:

1. Disconnect the 5-gallon liquid fuel supply.

a. Remove the fuel can from its inverted position on the support.

b. Grasp the fuel can adapter, lift up on the can to break the seal, and screw the adapter counterclockwise until it is disconnected from the fuel can.

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c. Disassemble the fuel can adapter kit. (See figure 1906.1.)

(1) Unscrew the vent tube from the adapter body.

(2) Disconnect the two pieces of the vent tube.

(3) Disconnect the interceptor loop from the adapter body.

(4) Lay all of the parts of the adapter kit aside.

d. Disconnect the fuel hose from the drip interceptor loop. (See figure 1906.2.)

e. Disconnect the other end of the fuel hose from the float valve. (See figure 1906.3.)

f. Disconnect the vent hose from the float valve. (See figure 1906.4.)

2. Detach draft diverter. (See figure 1906.5.)

a. Loosen the guy lines from the tent.

b. Remove the draft diverter from the top of the smokestack by having the smallest soldier climb up on the tent, lift off the draft diverter, and hand it down to personnel on the ground.

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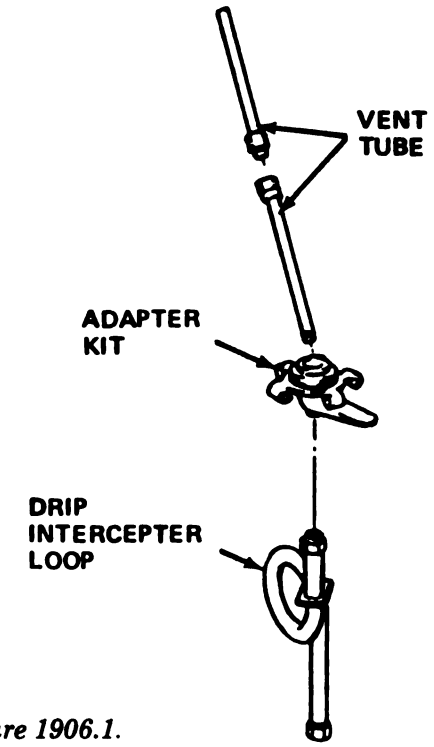

Figure 1906.1.
Disassembly of fuel can adapter kit.

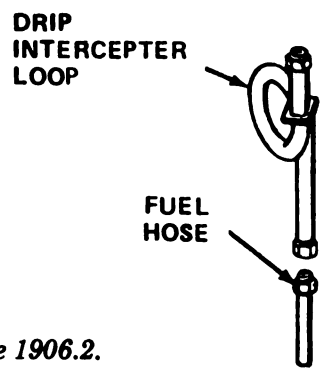

Figure 1906.2.
Disassembly of fuel hose to drip interceptor.

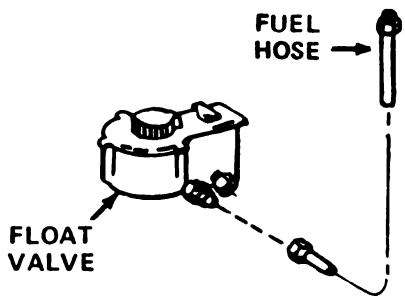

Figure 1906.3.
Disassembly of fuel hose to float valve.

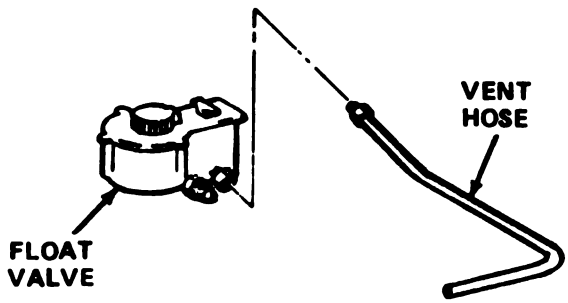

Figure 1906.4.
Disassembly of vent hose to float valve.

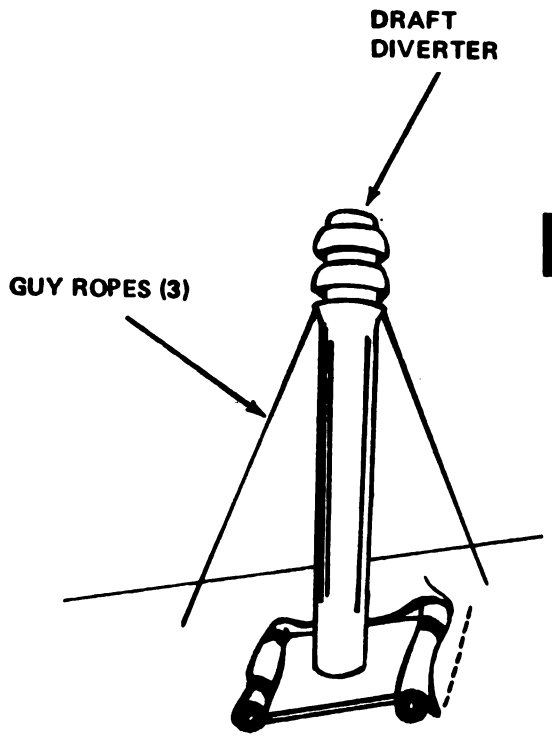

Figure 1906.5. Disassembly of draft diverter.

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3. Disassemble the air-conditioning and heating pipe. (See figure 1906.6.)

a. Remove the air-conditioning pipe from the stove top.

(1) Grasp the lowest pipe firmly with both hands.

(2) Shake the pipe back and forth.

(3) Lift up until the air-conditioning pipe has cleared the stove top.

b. Pull the pipes into the inside of the tent through the tent shield opening.

c. Disconnect the pipe section.

(1) Grasp two sections of the pipe.

(3) Shake the pipe back and forth.

(3) Pull the sections apart. Continue to do this until all six sections of pipes are disconnected from each other.

NOTE: *Have the man on top of the tent lift out the tent shield, hand it down to personnel on the ground, then close the flap over the heater pipe opening and climb down.*

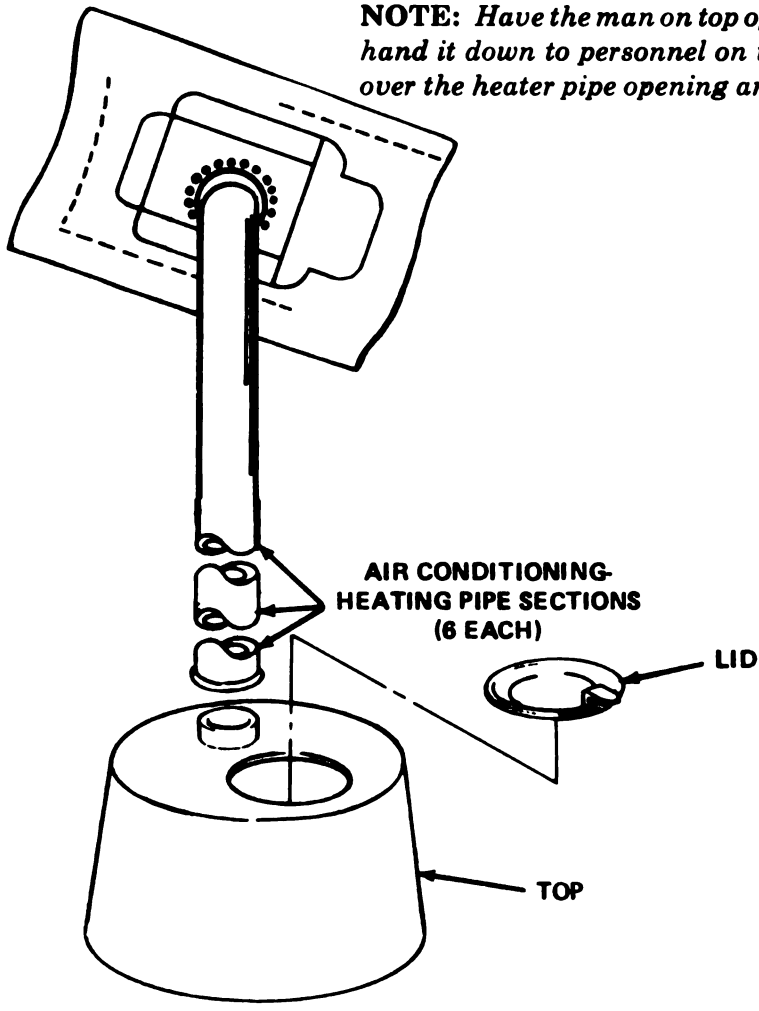

Figure 1906.6. Disassembly of air-conditioning and heating pipe.

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4. Dismantle the heater body. (See figure 1906.7.)

a. Lift the lid from the heater, and lay it aside.

b. Lift the top from the heater, and lay it aside.

c. Lift the flame spreader from the oil pot burner, and lay it aside.

d. Place the V-jaw wrench around the float valve nipple, turn the wrench to the left until the nipple is loose, then turn the nipple by hand to disconnect the float valve from the oil pot burner.

e. Lift the oil pot burner from the heater base, and set it aside.

f. Lift the adapter ring and set it aside.

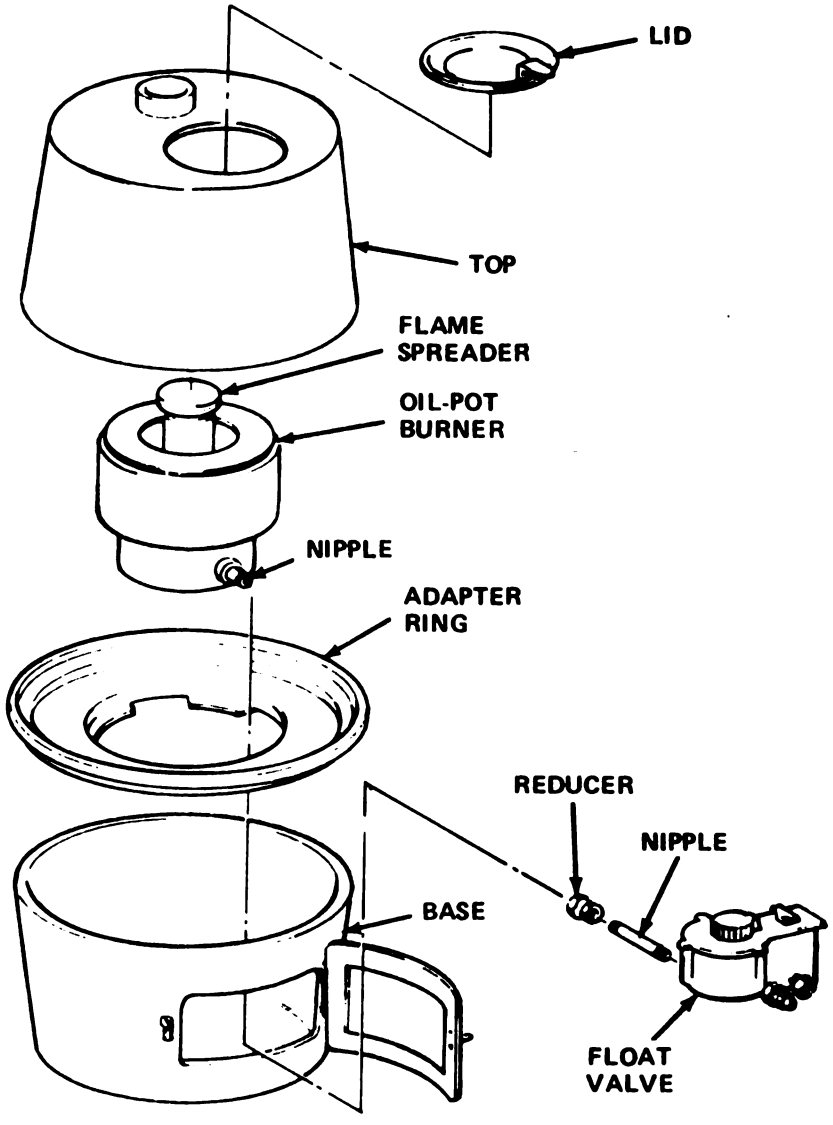

Figure 1906.7. Disassembly of heater body.

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5. Load the space heater.

a. Place the adapter ring on the heater base.

b. Place oil pot burner inside adapter ring and heater base.

c. Place the flame spreader on oil pot burner.

d. Clean the fuel hose and overflow hose, roll them neatly, and place them on the adapter ring.

e. Place the stove top over the adapter ring.

f. Place the float valve inside stove.

g. Place vent tube sections inside stove.

h. Place accessory tools inside heater.

i. Replace heater lid.

j. Lift heater and place it inside a container.

k. Place air-conditioning and heating pipe sections inside container.

l. Place tent shield inside container.

m. Have two men grasp each end of the container and lift it onto a carrier.

n. Lift sandbox onto a carrier.

REFERENCES:

TM 10-4500-200-13 (Operator's, Organizational, and Direct Support Maintenance Manual, Including Repair Parts and Special Tools List: Heaters, Space: Radiant Type, Portable M1941), chapter 2.

TM 38-750 (The Army Maintenance Management System (TAMMS)), chapter 3.

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CHAPTER 3

DUTY POSITION TASKS

Section I

FABRIC REPAIR SPECIALIST, CLOTHING AND TEXTILE REPAIR (43M1A)

TASK NUMBER	TITLE	PAGE
	MOBILE REPAIR OPERATIONS	
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101-513-1107	Prepare and operate the light-duty sewing machine.	3-19
101-513-1108	Troubleshoot the light-duty sewing machine.	3-36
101-513-1109	Prepare and operate the darning machine.	3-44
101-513-1110	Troubleshoot the darning machine.	3-54
	MACHINE-SEWN TEXTILES	
101-513-1151	Sew a hem in a pair of OG 107 field trousers with seam type 1.	3-62
101-513-1152	Construct and attach a precut patch-type pocket to an OG 108 shirt using seam type 2.	3-64
101-513-1153	Construct and attach coat top pocket flaps with seam type 3.	3-66
101-513-1154	Restitch seam type 4 to repair back panels of a parka shell.	3-68
101-513-1155	Attach a replacement collar to a CTA 50-900 item with seam type 5.	3-70
101-513-1156	Finish a replacement collar with seam type 6.	3-73
101-513-1157	Zigzag darn holes up to one-half inch in diameter.	3-76
101-513-1158	Reinforce darn holes up to 1 inch in diameter.	3-78

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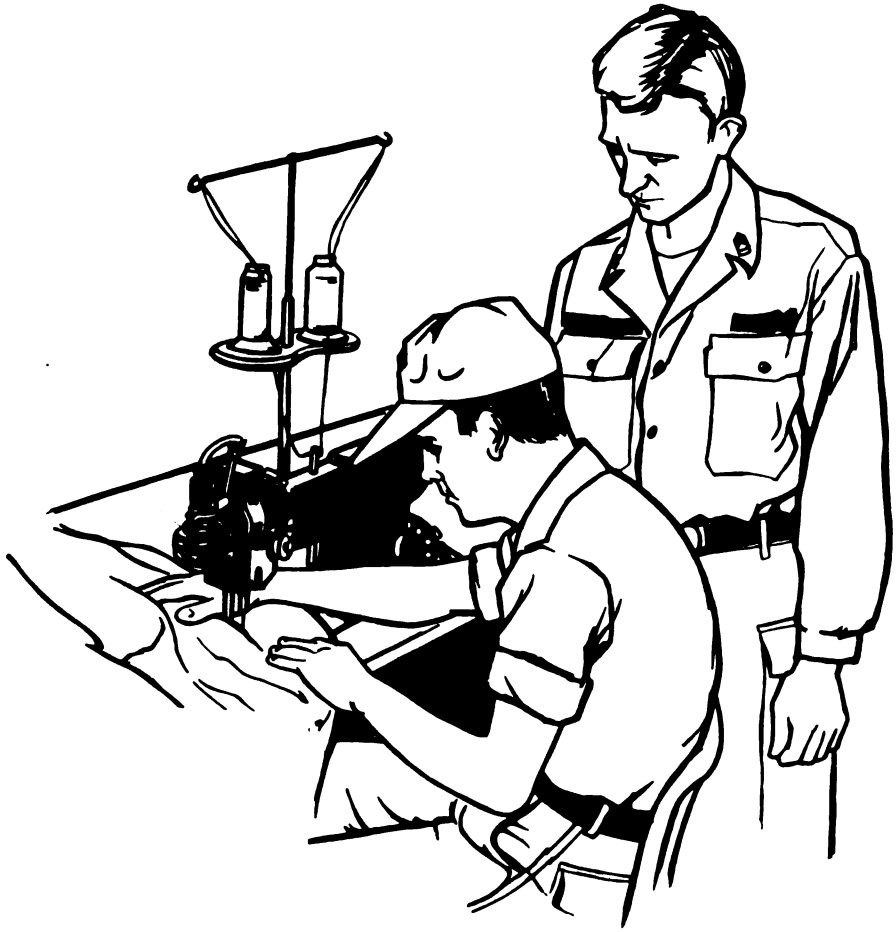
TASK NUMBER	TITLE	PAGE
101-513-1159	Repair 1- to 2-inch holes, tears, cuts, or extremely worn areas on CTA 50-900 items with a simple patch (top).	3-80
101-513-1160	Construct and sew T-patch to repair an L-shaped tear on CTA 50-900 items.	3-82
101-513-1161	Sew organizational shoulder insignia on personal and organizational clothing issue items.	3-84
101-513-1162	Replace a slide fastener in a pair of OG 107 or OG 108 trousers.	3-86
101-513-1163	Repair small holes, tears, and rips in sleeping bags with a machine-sewn pinch patch.	3-89
101-513-1164	Replace a damaged slide fastener in a sleeping bag.	3-95



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■ 101-513-1101

PREPARE THE MOBILE CLOTHING REPAIR TRAILER FOR OPERATION

CONDITIONS: You are working in a mobile fabric repair shop. You have just arrived at the location where the mobile shop is to be operated. Your supervisor has directed you, as a member of a four-person team, to prepare the mobile clothing repair trailer for operation. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: one fully equipped mobile clothing repair trailer.

STANDARD: You must complete the performance measures in sequence, without error, within 2 hours to unload and set up the mobile clothing repair trailer. Make sure that the caster is locked in place, that brakes are set, and that the rear support leg is adjusted to support the rear end of the trailer.

PERFORMANCE MEASURES:

1. Disconnect the mobile clothing repair shop.

   a. Set the right and left handbrakes by pulling each handbrake forward to apply the brake. (See fig 1101.1.)

   b. Lift, lower and lock the caster in the vertical position by pulling down the caster release until it locks in place. (See fig 1101.1.)

   c. Disconnect the intervehicular cable from the towing vehicle by pulling the socket out of the receptacle.

   d. Close the air shutoff valve on the 2 1/2-ton truck by pushing the handle in. (See fig 1101.2.)

   e. Turn the air hose couplings counterclockwise to disconnect them from the 1 1/2-ton truck. (See fig 1101.2.)

   f. Place the disconnected airhose in the brackets provided on the clothing repair trailer.

   g. Unhook the safety chains from the 2 1/2-ton truck, and hook them to the lifting bar on the clothing repair trailer (See fig 1101.1.)

   h. Pull out the cotter key from the pintle. (See fig 1101.2.)

   i. Lift the drawbar coupler from the pintle of the 2 1/2-ton truck. (See fig 1101.2.)

   j. Pull out the cotter key to release the support leg located underneath the rear of the trailer. (See fig 1101.3.)

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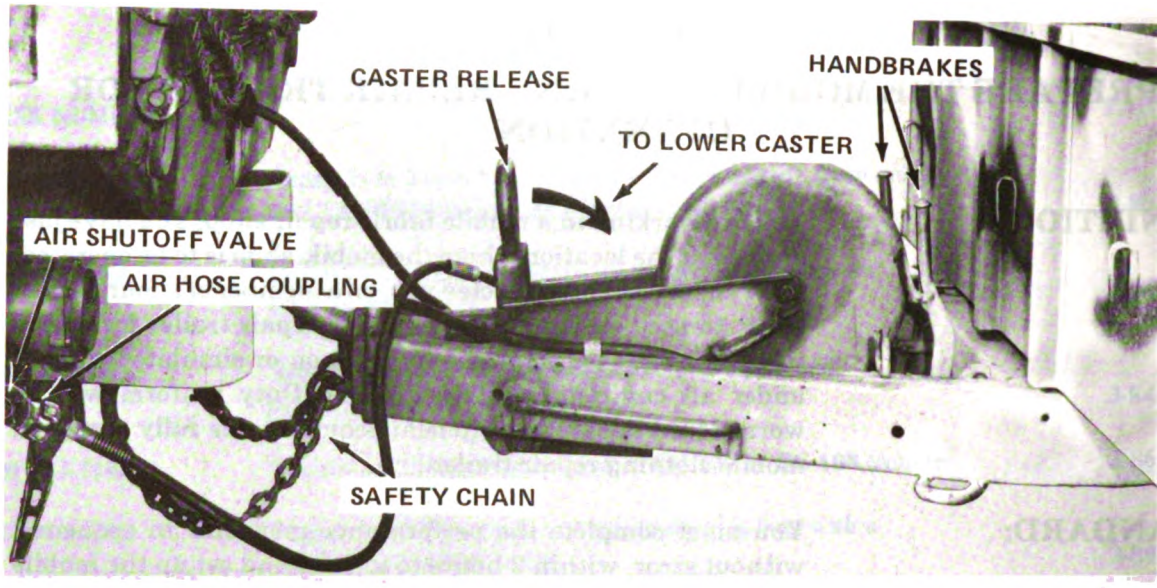

Figure 1101.1. Positions of airhose coupling, air shutoff valve, safety chain, caster release, and handbrakes.

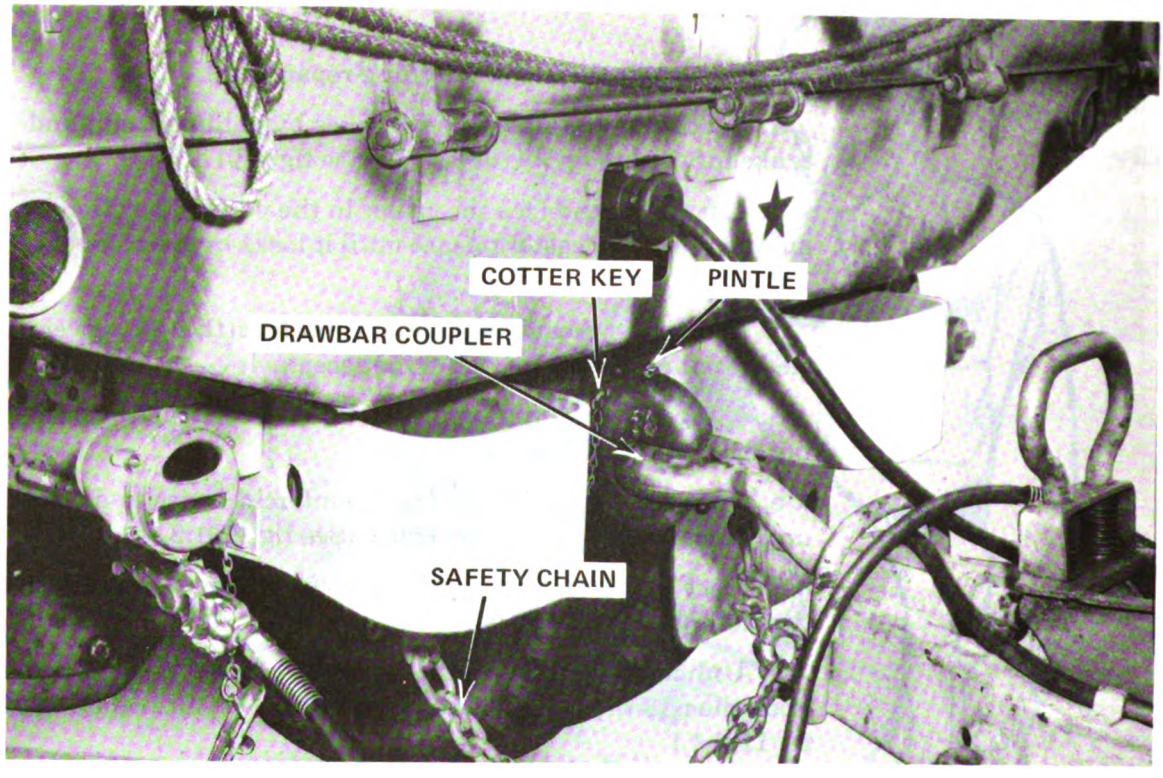

Figure 1101.2. Position of cotter key, drawbar coupler, and safety chain.

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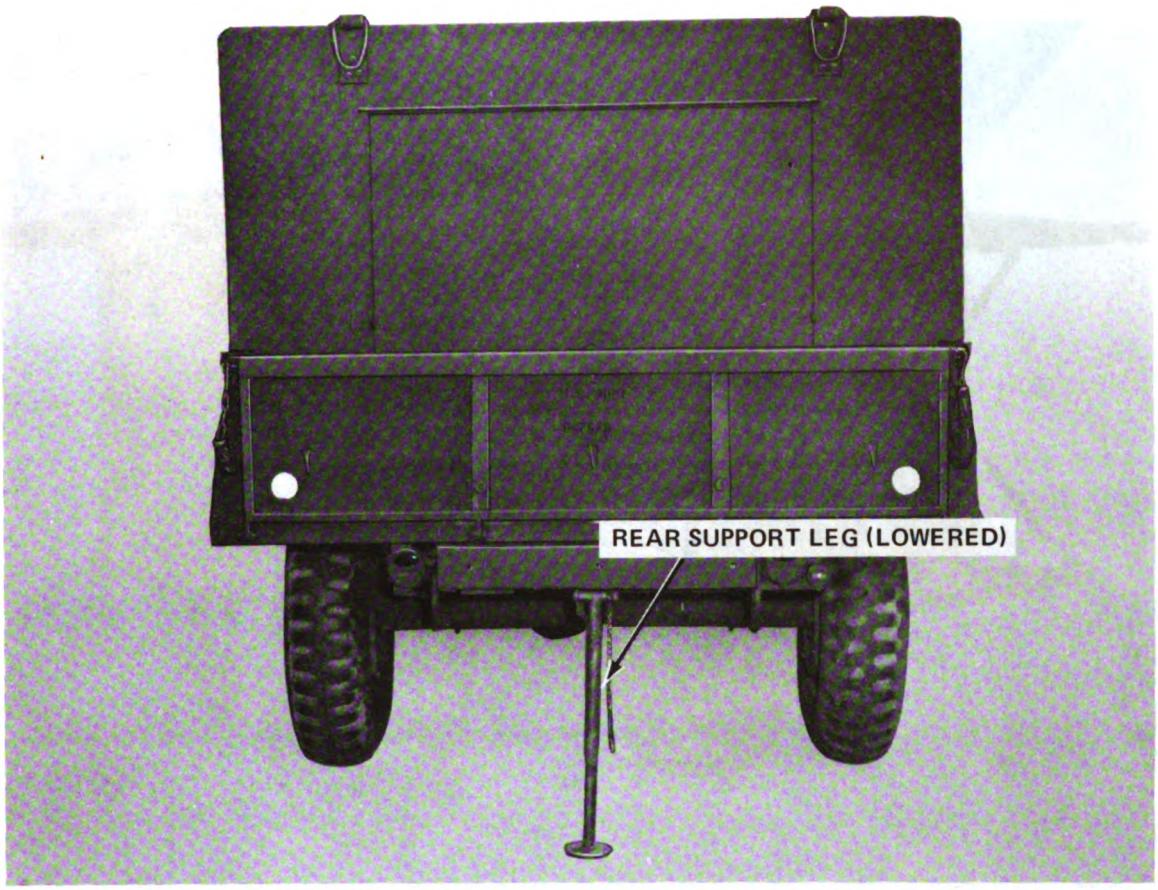

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Figure 1101.3. Rear support leg.

k. Lower the rear support leg to the ground. (See fig 1101.3.)

l. Adjust the rear support leg as needed.

(**NOTE:** *To lower the rear support leg, turn it counterclockwise; to raise the rear support leg, turn it clockwise.)*

2. Unlock and raise the doors to the cabinet assembly.

a. Turn the locking latch handles to unlock and open each door on the cabinet assembly.

b. Raise the doors and position the stays to hold the doors in the open position.

(**NOTE:** *Make sure the stays are fully extended and locked into position.)*

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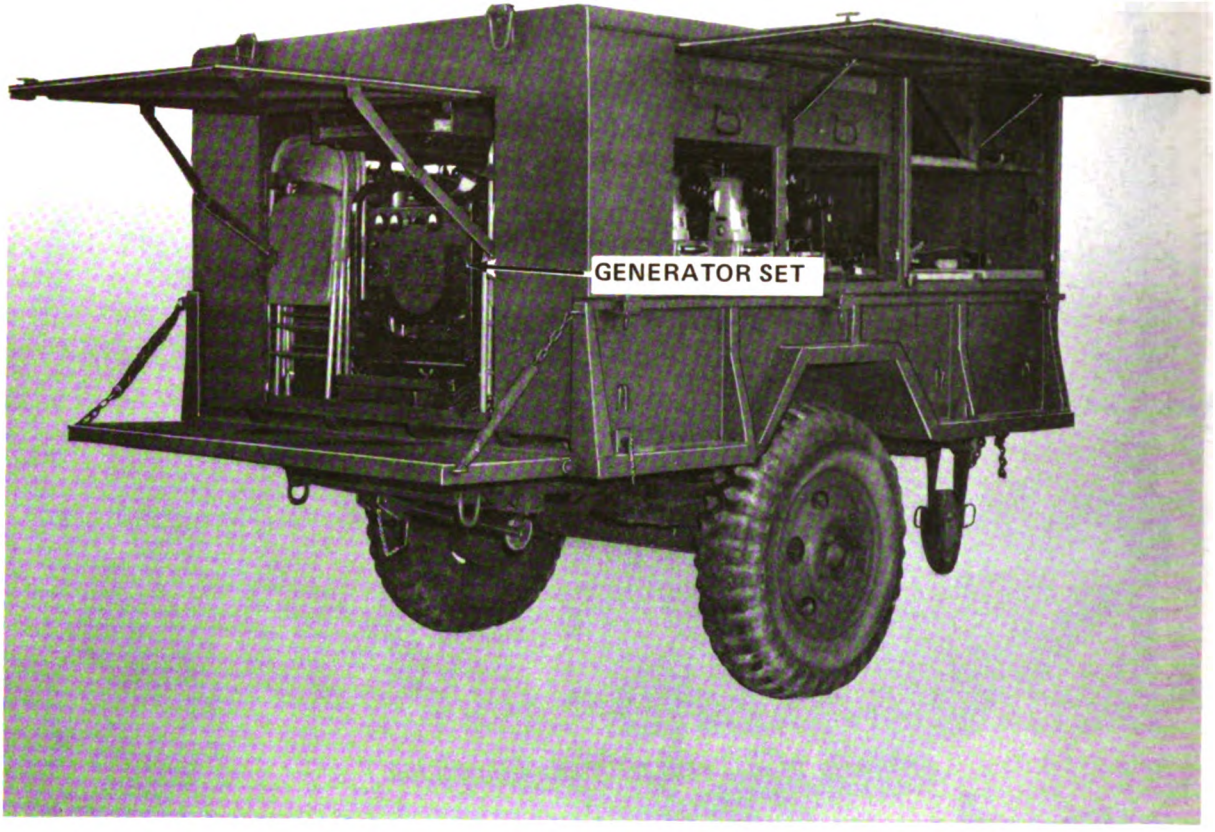

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Figure 1101.4. Position of generator set.

3. Unload the 3-kilowatt generator set. (See fig 1101.4 for position of generator set.)

a. Loosen the wingscrews on the generator rear holddown assembly that secure the generator set to the slide tracks.

b. Remove the holddown assembly from the cabinet.

c. Loosen the wingscrews on the generator front holddown assembly.

d. Pull the generator set toward you.

e. Lift the generator set from the slide track and out of the cabinet.

f. Place the generator set at least 25 feet from the work area.

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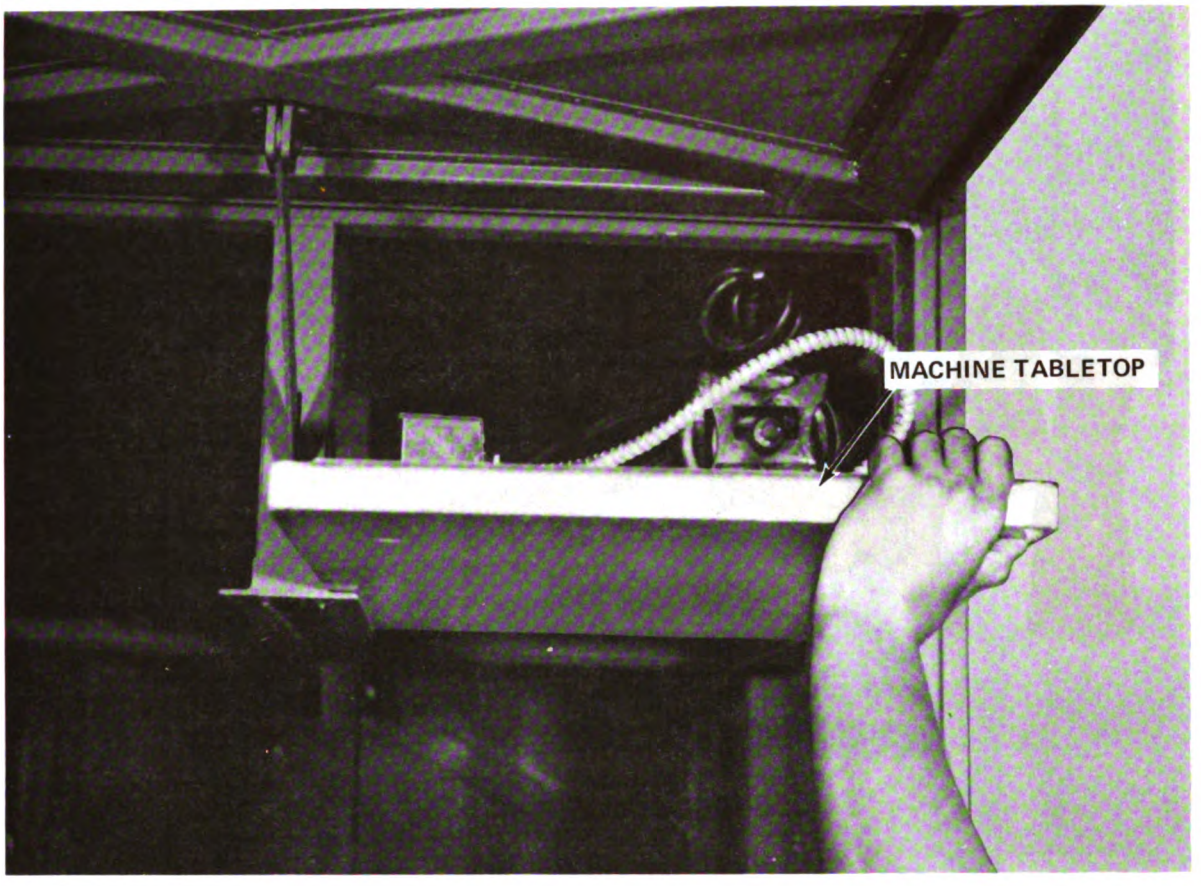

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Figure 1101.5. Removing machine tabletop.

4. Unload the machine table assemblies, folding stands, and storage boxes.

a. Slide the machine tabletops from the racks and out of the cabinets. (See fig 1101.5.)

b. Unfasten the holddown straps that secure the eight folding stands in the lower compartments on each side of the cabinet.

c. Remove the cross-braces from the tops of the folding stands and from the cabinet.

d. Remove the folding stands from the compartments.

e. Slide out and remove the four storage boxes from the left and right sides of the cabinet.

5. Unload the folding chairs.

a. Unfasten the strap assemblies that hold the eight folding chairs in the rear of the cabinet.

b. Remove the folding chairs from the cabinet.

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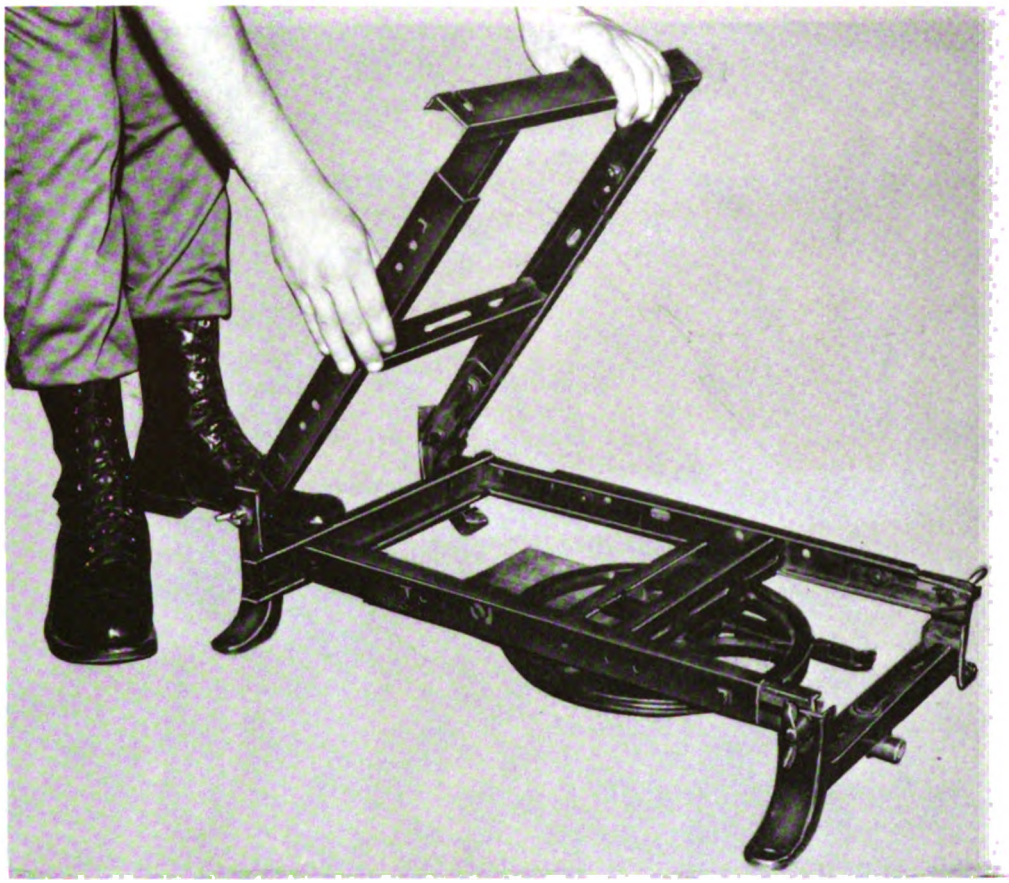

Figure 1101.6. Folding stand.

6. Unload the table assemblies.

a. Pull the worktables from the slides in the rear of the cabinet.

b. Position the worktable inside the tent.

7. Set up mobile clothing repair shop equipment.

a. Assemble folding stands.

(1) Loosen the wingnuts at each corner of each folding stand.

(2) Raise the ends of the folding stands to the vertical position. (See fig 1101.6.)

(3) Press down on the ends of the folding stand until the bottoms come in contact with the top of the foot section.

(4) Tighten the wingnuts securely.

(5) Place the foot treadle in its operating position.

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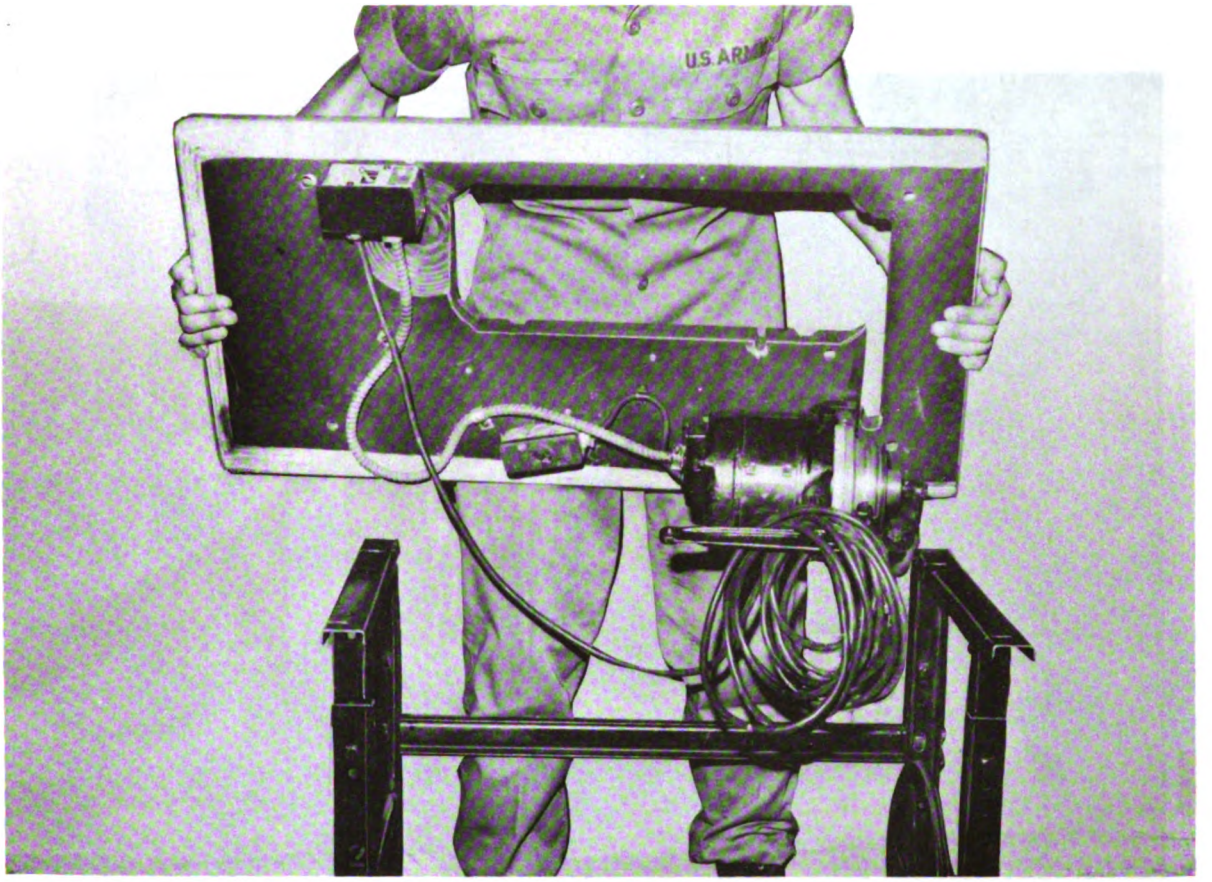

Figure 1101.7. Tabletop assembly being positioned on folding stand.

(6) Install a cross-brace to the back of the folding stand.

b. Position tabletop assemblies to folding stands.

(1) Open storage boxes to gain access to all bolts, wingnuts, and clamps used to secure tabletops to folding stands.

(2) Install a tabletop assembly on each folding stand. (See fig 1101.7.)

(3) Insert the bolts through the tabletop, into the slots in the top of the steel folding stand, and through the holes in the clamps. Fasten each bolt securely with the wingnuts.

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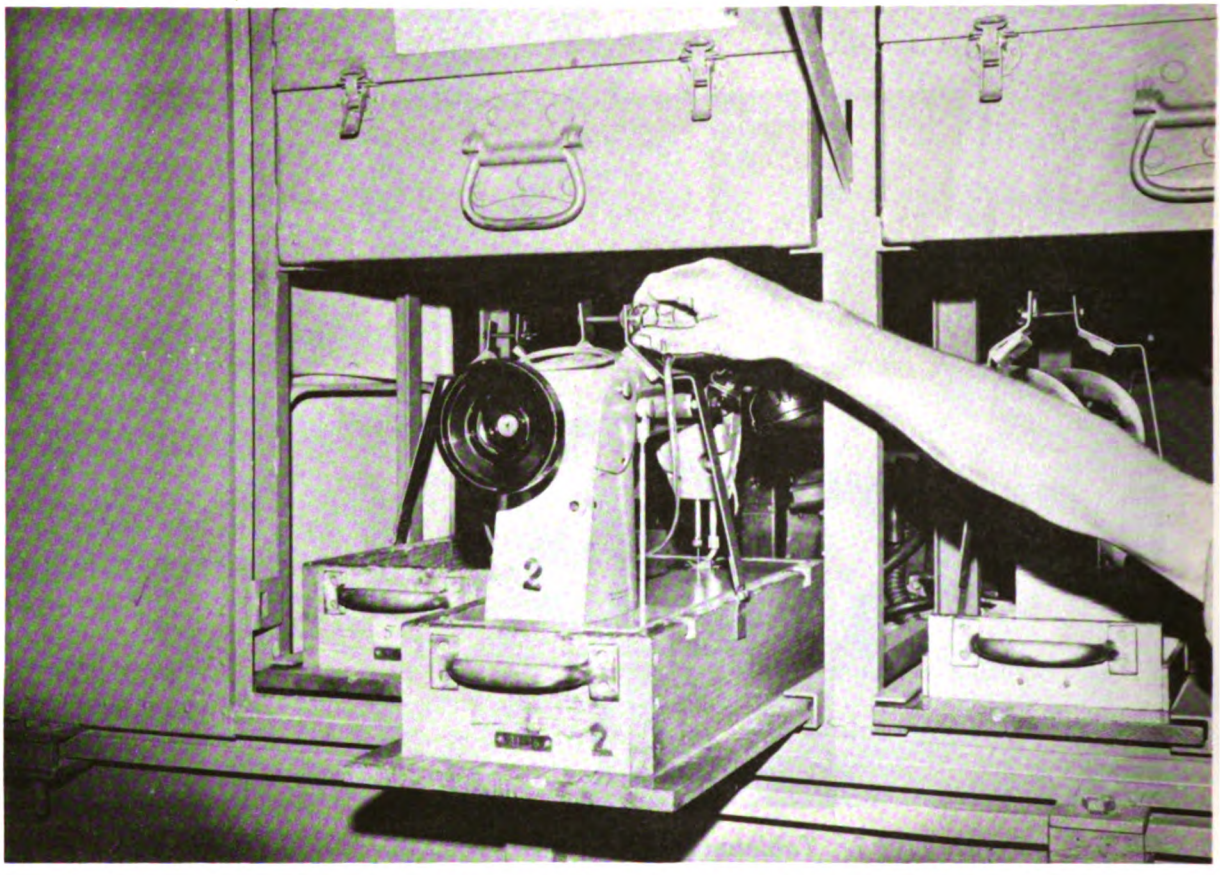

Figure 1101.8. Removing machine head.

PERFORMANCE MEASURES (CON.)

c. Install the sewing machine heads and components on the tabletop assemblies.

(1) Pull each tray with a machine head out of the slide until it hits the stop located on the bottom of the tray. (See fig 1101.8.)

(2) Remove the thumbscrews that secure the holddown strap assembly to each machine head.

(3) Open the straps and remove each machine from the cabinet.

(4) Place the sewing machine head into the cutout slot on the tabletop. (See fig 1101.9.)

(5) Remove the pitman rod from the storage box and connect it to the clutch assembly and to the foot treadle.

(6) Remove the bobbin winder and the wood screw from the storage box.

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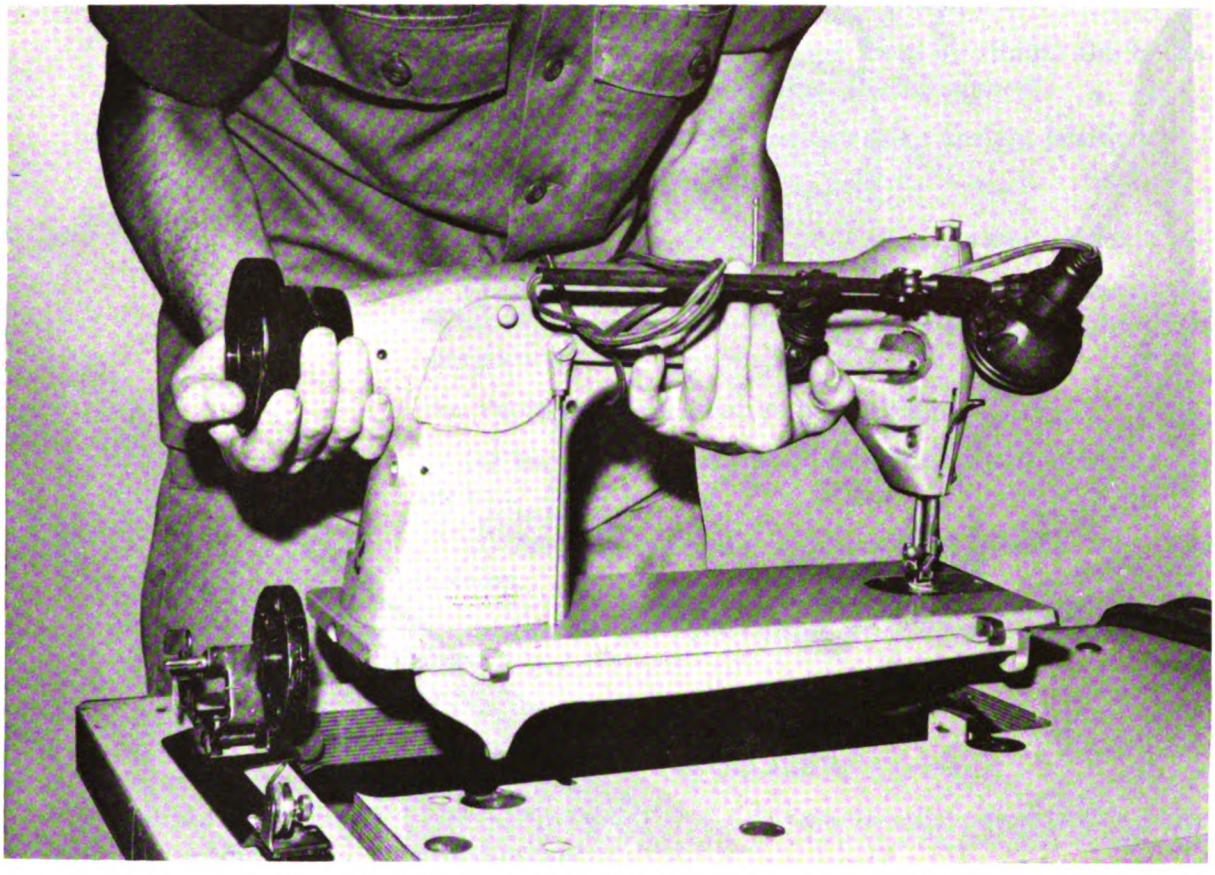

Figure 1101.9. Positioning machine head on table assembly.

(7) Install the bobbin winder under the balance wheel on the tabletop.

d. Install the thread unwinder.

(1) Remove the thread unwinder base thread cone rest, setscrews, and screws from the storage box.

(2) Place the thread unwinder base to the rear of the bobbin winder on the tabletop. Tighten setscrews. (See fig 1101.10.)

(3) Place the thread cone rests on the thread unwinder, and install a setscrew in them (underneath the cone rests). Place the thread cone rests to the thread unwinder base, and tighten the setscrews.

(4) Place the thread guides into the positioner thread guide cup.

(5) Screw the thread guide locknut into the positioning thread guide cup.

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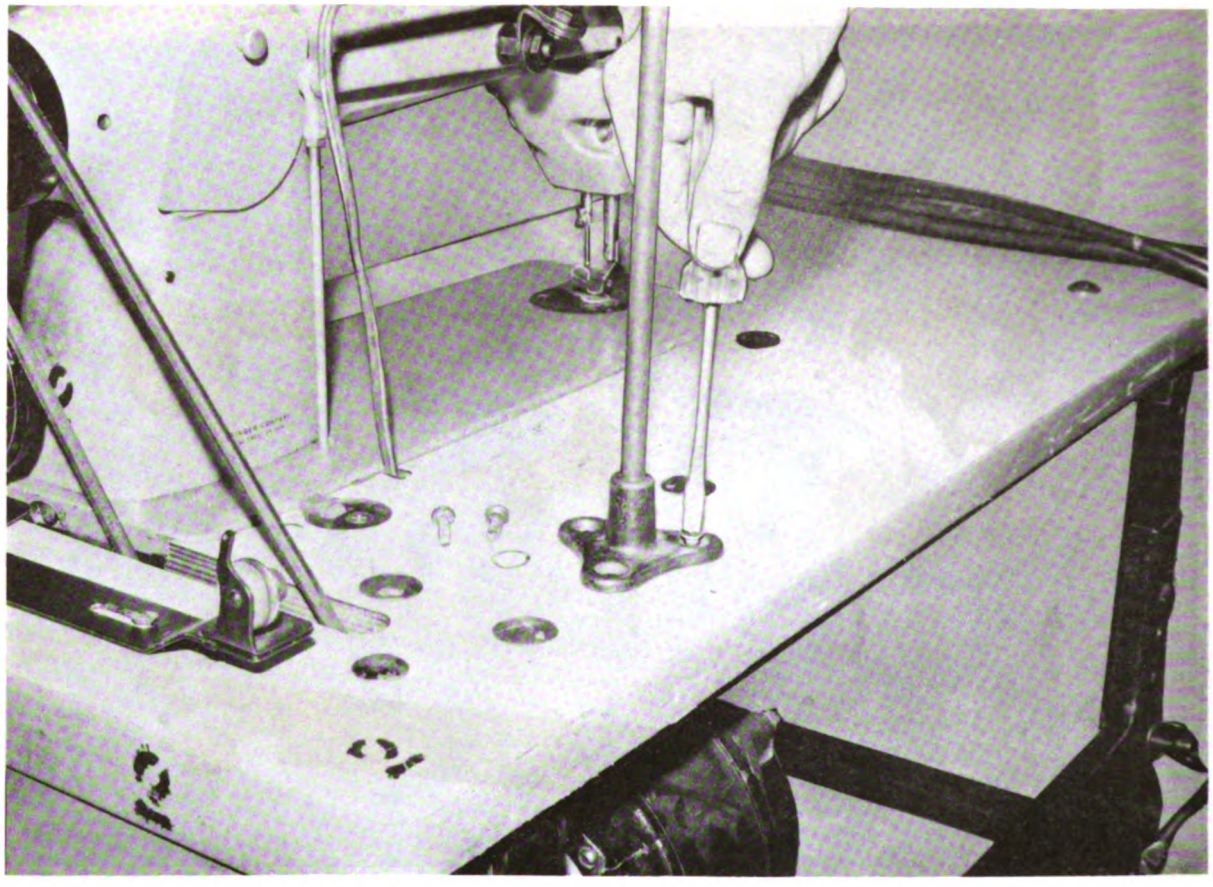

Figure 1101.10. Installing thread unwinder.

e. Put the sewing machine rest pins through the hole in the rear of the machine head and the hole on the rear of the tabletop.

f. Remove the light cord from the storage box.

g. Attach the light cord to the bracket on the rear of the machine head.

h. Plug the light cord into the receptacle box underneath the table top.

i. Remove the drivebelt from the storage box.

j. Install the retaining pin in the drive belt.

k. Install the belt on the motor drive pulley and on the machine drive pulley.

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l. Place a folding chair in position in front of each sewing machine.

m. Position worktable assemblies.

(1) Turn the table assemblies upside down.

(2) Unfold the legs and lock them by sliding the backs downward into position to secure the leg support.

(3) Turn table assemblies over to an upright position.

n. Position the grommet press.

(1) Remove the grommet press from the storage box.

(2) Remove the nuts, washers, and screws from the end of the tabletop assembly. Install the grommet press. Tighten the nuts securely.

o. Position the tack-button attaching machine.

(1) Remove the tack-button attaching machine from storage box.

(2) Remove the nuts, washers, and screws from the tabletop.

(3) Install the tack-button attaching machine to the tabletop.

(4) Tighten the nuts securely.

p. Connect power cables and light cords.

(1) Connect the three-receptacle outlet power cables to the generator set.

(2) Connect the three 2-duplex outlet power cables to the 3-receptacle outlet power cable.

(3) Connect the four light cords to the two-duplex outlet power cable receptacles marked with the letter "L."

q. Open the bracket in the rear of the cabinet and remove the fire extinguisher.

r. Place the fire extinguisher in a convenient location near the work area.

NOTE: *Dismantle the components of the clothing repair shop, and load everything in the cabinet by reversing the unloading and setting up procedures. Before closing the cabinet doors, make sure all tray and table assemblies and storage boxes are secured in their proper positions to prevent damage to equipment and doors.*

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1106

OPERATE THE 3-KILOWATT GENERATOR SET

CONDITIONS: Your immediate supervisor tells you to operate the 3-kilowatt (kw) generator set. The equipment has been placed in position and set up for operation. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: 3-kw generator set with ground rod; 5-gallon can with gasoline, auto; and DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

STANDARD: You must complete all performance measures in sequence, without error, within 20 minutes, to operate one 3-kw generator set.

PERFORMANCE MEASURES:

1. Perform operator and crew before-operation preventive maintenance checks and services. (See fig 1106.1.)

a. Visually inspect frame assembly for dents, cracks, and other damages.

b. Check to make sure the generator set is properly grounded.

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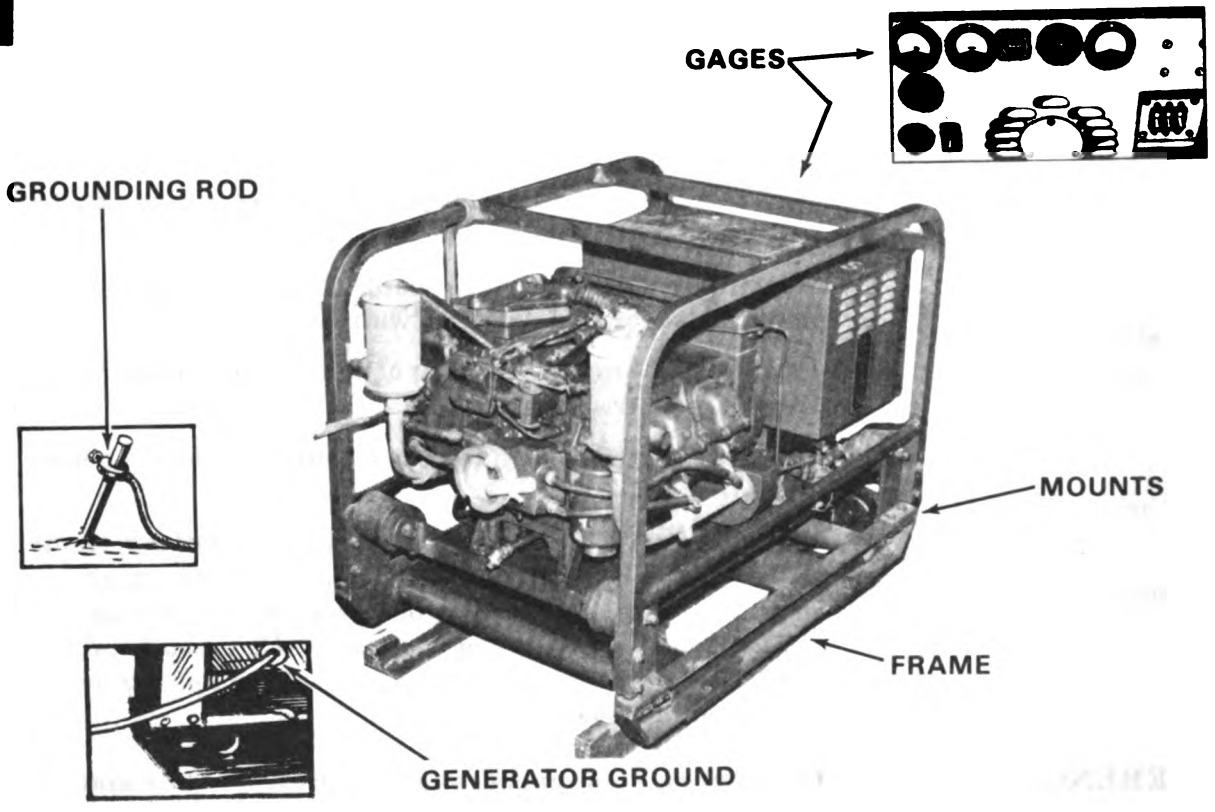

Figure 1106.1. Generator set components.

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c. Inspect the generator set ground stud for damaged threads.

d. Inspect the shock mounts and bonding straps for damage.

e. Check to make sure that no glass covers are broken.

f. Service the generator set by adding fuel and oil as needed.

g. Report deficiencies that the operator cannot correct to organizational maintenance personnel.

2. Start the generator set.

a. Place the fuel selector valve in SET or AUX tank position, depending on the source of fuel supply. (See fig 1106.2.)

b. Place the intake shutter lever in the winter position (to the left) when the temperature is 32° F or below, or in the summer position (to the right) when the temperature is above 32° F. (See fig 1106.3.)

c. Place governor control in START/IDLE position. (See fig 1106.4.)

d. Close choke with choke control lever. (See fig 1106.4.)

e. Place OFF/RUN switch in RUN position. (See fig 1106.4.)

f. Wrap starter rope clockwise around the flange, and pull the rope with a quick, steady motion. Repeat until the engine starts.

g. Move circuit breaker to the ON position. (See fig 1106.5.)

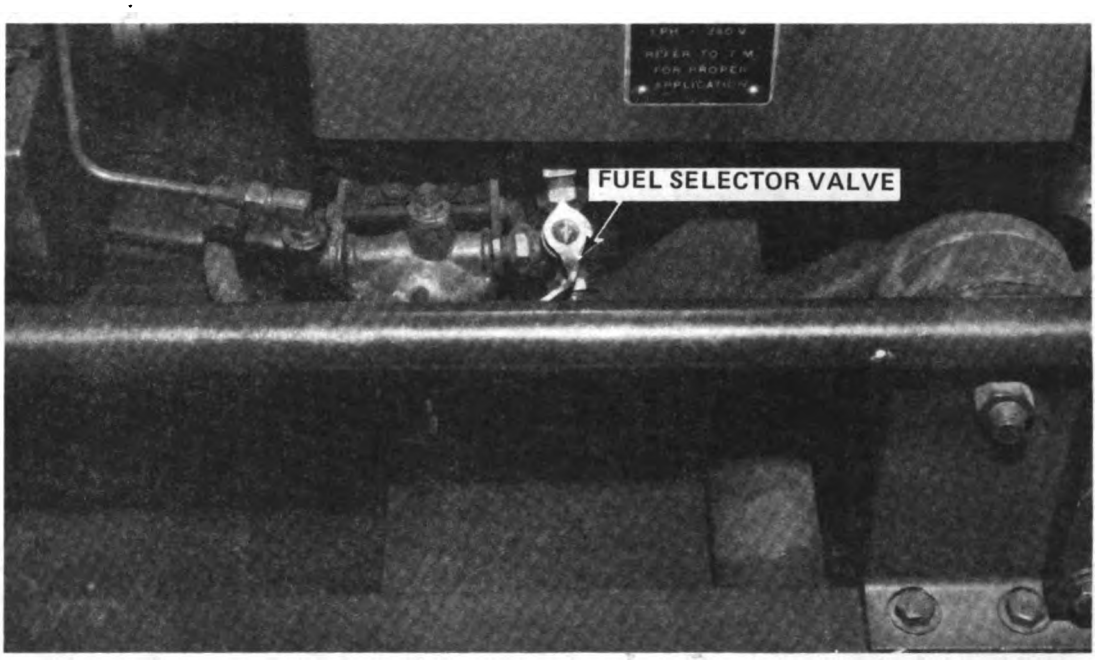

Figure 1106.2. Fuel selector valve.

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3. Adjust the controls as required for smooth operation.

a. Open the choke gradually with the choke control lever as the engine gets up to operating speed.

b. Regulate the governor control to obtain 60 cycles.

c. Adjust output voltages, using the voltage increase knob to produce 110 volts. (See fig 1106.5.)

4. Perform operator and crew during-operation preventive maintenance checks and services.

a. Visually inspect for loose mountings and connections.

b. Check controls and instruments for damage, loose mountings, and normal gage readings.

c. Listen for any unusual noises.

d. Note for future correction any defects discovered during operation. Stop operation immediately if a deficiency is noticed which would damage the equipment if operation were continued.

e. Report deficiencies that the operator cannot correct to organizational maintenance personnel.

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5. Turn off the generator set.

a. Move circuit breaker to the OFF position. (See fig 1106.5.)

b. Turn the voltage increase knob fully counterclockwise. (See fig 1106.5.)

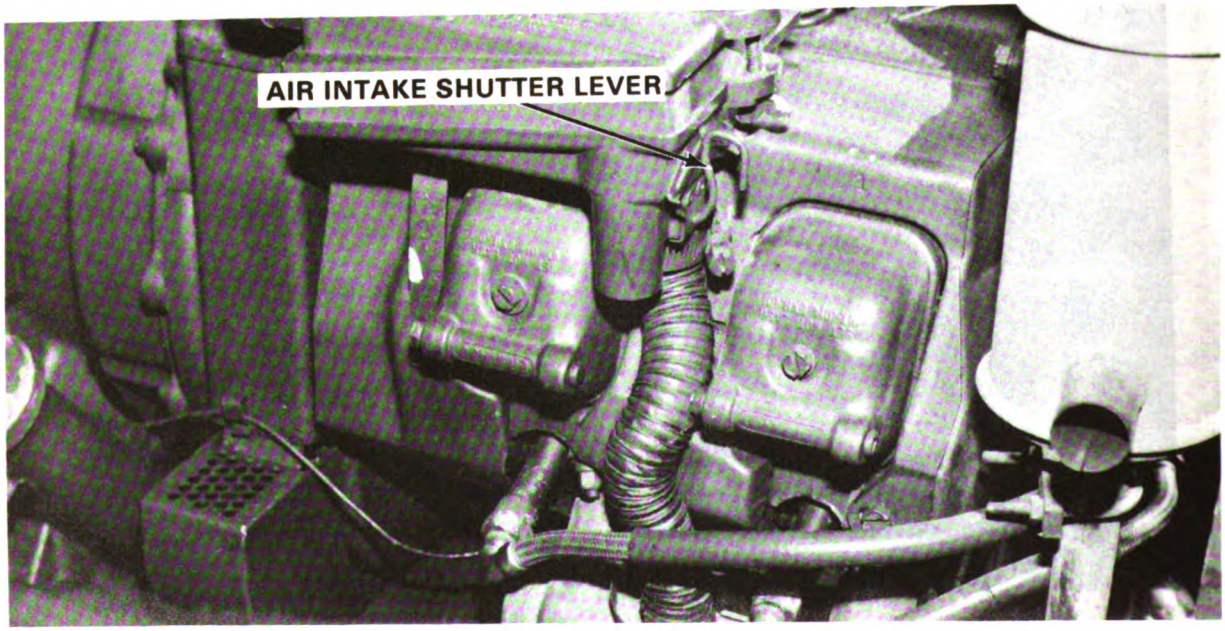

Figure 1106.3. Air intake shutter lever.

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c. Allow the engine to run for 3 to 5 minutes.

d. Place the OFF/RUN switch in the OFF position.

e. Place the fuel selector valve in the OFF position.

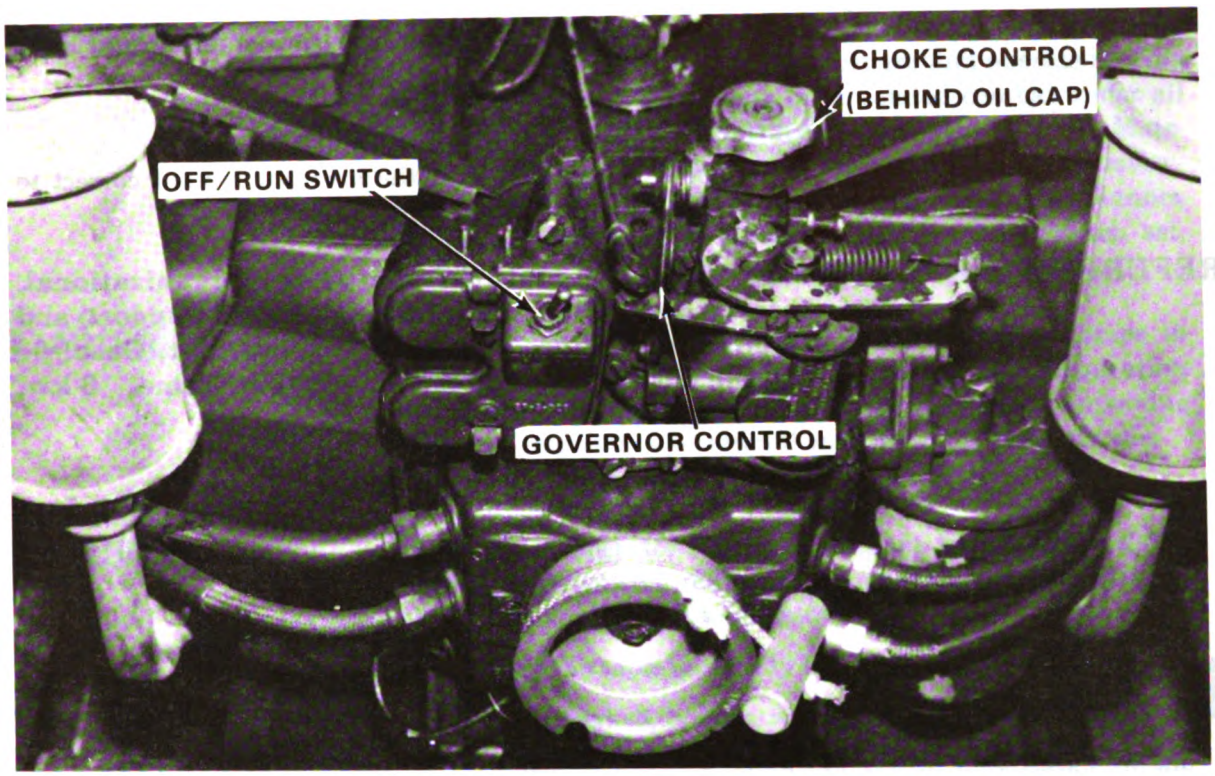

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Figure 1106.4. Governor control, choke control, OFF/RUN switch.

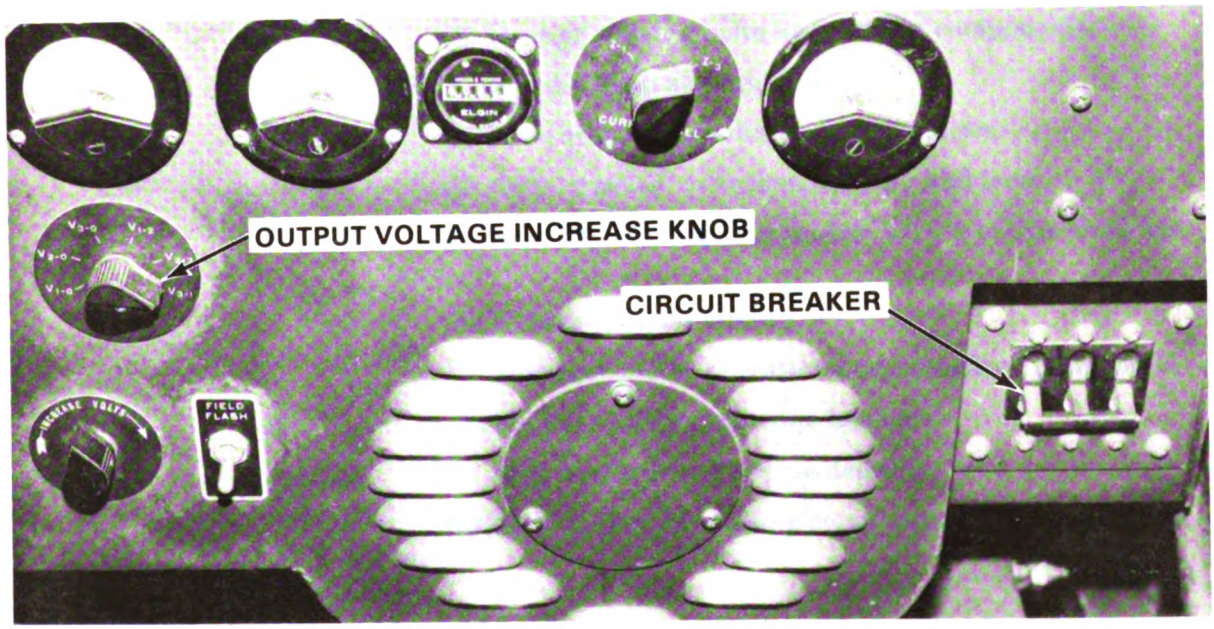

Figure 1106.5. Voltage increase knob and circuit breakers.

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6. Perform after-operation maintenance.

a. Check fuel lines, connections, and fuel tank for leaks.

b. Check instruments for broken glass and loose connections.

c. Check wiring for cracked or worn insulation and loose connections.

d. Service the generator by adding oil as needed.

e. Report deficiencies that the operator cannot correct to organizational maintenance personnel.

REFERENCES: **TM 5-6115-271-14 (Operator/Crew, Organizational, Intermediate (Field), (Direct and General Support) and Depot Maintenance Manual: Generator Set, Gasoline Engine Driven, Skid Mounted, Tubular Frame, 3 kw, 3 Phase, AC)**

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PREPARE AND OPERATE THE LIGHT-DUTY SEWING MACHINE

CONDITIONS: A light-duty sewing machine has been assembled, and your supervisor has instructed you to prepare and operate it. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: one light-duty sewing machine (fully assembled), DA Form 2404 (Equipment Inspection and Maintenance Worksheet), lubrication order, screwdriver set, wrench set, sash brush, cleaning rags, machine oil, thread, and needle.

STANDARD: You must complete all specified performance measures in sequence, without error, within 60 minutes, for the preparation and operation of one light-duty sewing machine. The machine must be completely operational with all adjustments made.

PERFORMANCE MEASURES:

1. Perform operator's before-operation maintenance using the daily preventive maintenance checklist below: (See fig 1107.1 for location of components.)

a. Check the table assembly for

(1) cut, cracked, broken, warped, and dirty tabletop.

(2) loose or missing bolts, nuts, and mountings on the folding stand.

(3) bent or broken components.

(4) loose or missing bolts and nuts on components.

b. Check the lamp assembly for

(1) loose or missing bolts, nuts, and screws.

(2) dirty, cracked, or broken housing and lens.

(3) frayed insulation and broken wiring on the electrical cord.

(4) a broken lamp switch.

(5) improper switch operation and burned out lamp (bulb).

c. Check the clothing machine head for

(1) dirty surfaces and grease deposits.

(2) bent, broken, or missing components and loose mounting.

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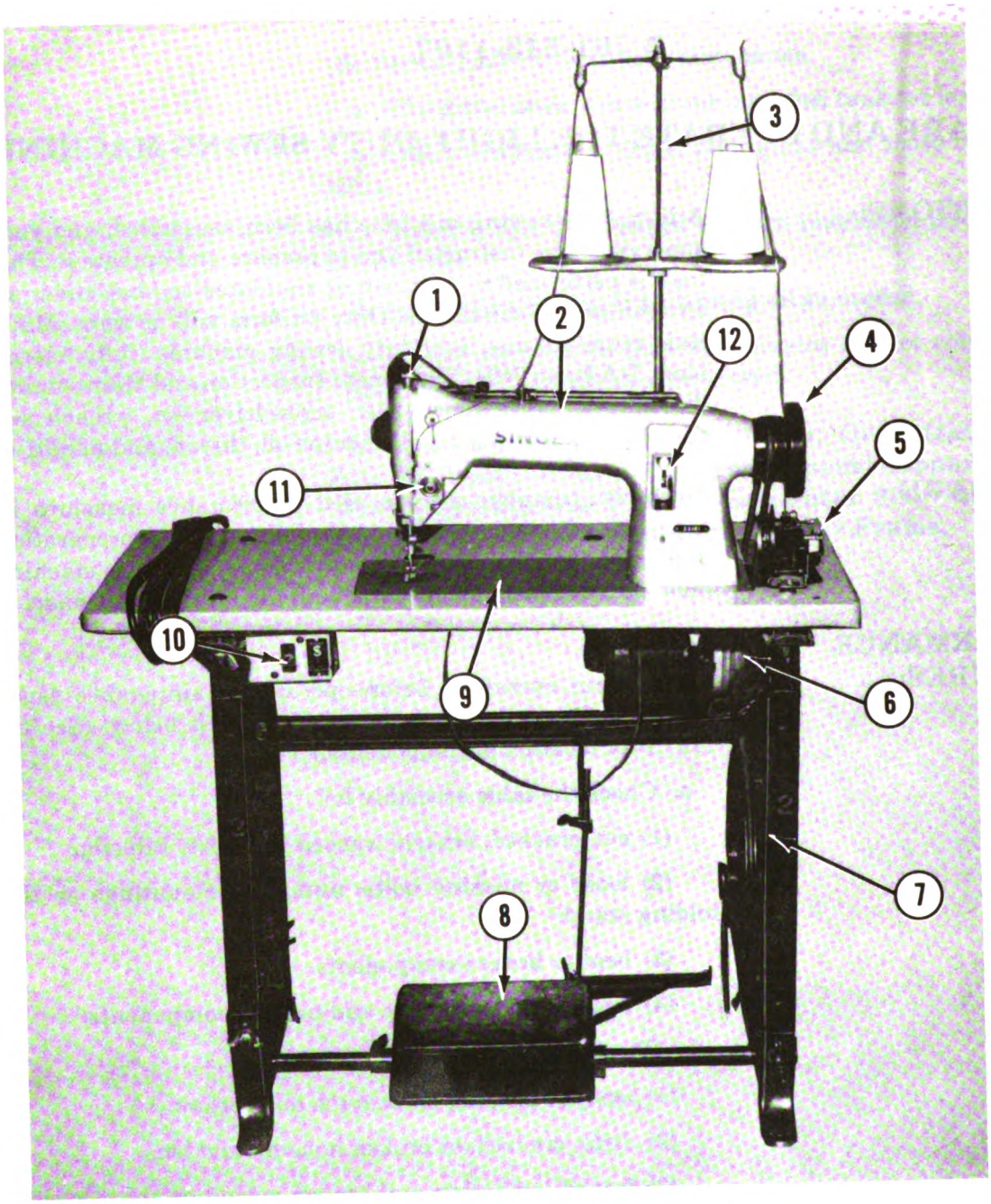

1	Pressure-regulating thumbscrew	7	Drive wheel
2	Arm	8	Treadle
3	Thread stand	9	Bed
4	Balance wheel	10	Switch
5	Bobbin winder	11	Tension-regulating thumb nut
6	Motor	12	Feed-regulator thumbscrew

Figure 1107.1. Model 331K1 sewing machine.

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(3) broken or excessively worn needlepoint.

(4) correctly installed needle (long groove is to the operator's left).

d. Check the thread unwinder for

(1) loose or missing bolts, nuts, and screws.

(2) bent or broken components.

(3) loose mountings.

e. Check the drivebelt and pulleys for

(1) broken, frayed, or worn drivebelt.

(2) loose mounting of the belt on the pulleys.

(3) cracked, chipped, or broken edges, and loose mounting of the pulleys.

(4) a 1/2-inch distance between the sides of the belt when both sides of the belt are pressed inward midway between the pulleys.

f. Check the bobbin winder for

(1) bent, broken, loose, or missing components.

(2) excessively worn leather brake.

(3) incorrect tension of the thread spring.

(4) improper adjustment of the pulley with the drivebelt.

g. Check the electric motor for

(1) dirty surfaces and grease deposits.

(2) bent, cracked, or broken housing.

(3) loose or missing bolts and nuts.

(4) loose electrical connection and loose mountings.

(5) unusual noise and excessive vibration during operation.

h. Check the folding stand for

(1) bent or broken components.

(2) loose or missing bolts and nuts.

(3) loose mountings on the table assembly.

(4) level placement on the floor.

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LUBRICATION ORDER

LO 10-3530-203-10-2

20 OCTOBER 1965

CLOTHING, REPAIR SHOP, TRAILER MTD, ARMY MODEL SPV34, YORK ASTRO MODEL D8700337, TEXTILE REPAIR SHOP, TRAILER MTD, ARMY MODEL SPV35, YORK ASTRO MODEL D8700447, MACHINE, SEWING, CLOTHING, SINGER MODEL 31-15

Reference: LO 10-3530-203-10-1 and 3, C9100-IL

Intervals are based on normal hours of operation. Reduce to compensate for abnormal operation and severe conditions. During inactive periods, sufficient lubrication must be performed for adequate preservation.

Clean parts with SOLVENT drycleaning. Dry before lubricating.

Apply two to three drops of LO at each friction point unless otherwise noted.

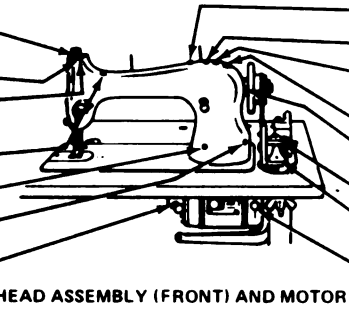
FOLD

FOLD

1

LUBRICANT	•	INTERVAL
Needle Bar LO		4
Presser Bar LO		4
Takeup Lever Link Hinge LO		4
Arm Shaft LO		4
Oscillating Rock Shaft LO		4
Oscillating Shaft LO		4
Motor GAA (See Note 1)		250

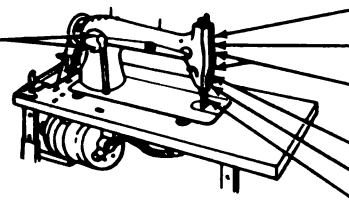
INTERVAL	•	LUBRICANT
4		LO Arm Shaft
4		LO Feed Fork
4		LO Feed Lifting Rock Shaft Connecting Rod
4		LO Connecting Rod
4		LO Arm Shaft
4		LO Bobbin Winder Frame
4		LO Bobbin Winder Hinge
250		GAA Motor (See Note 1)



HEAD ASSEMBLY (FRONT) AND MOTOR

Feed Connecting Link (2 points) LO		4

4		LO Thread Takeup Lever Hinge
4		LO Thread Takeup Lever Crank
4		LO Needle Bar Connecting Link (2 points)
4		LO Presser Bar Spring
4		LO Needle Bar
4		LO Presser Bar



HEAD ASSEMBLY (REAR)

MEC 3530-203-10/44 (1)

Figure 1107.2. Lubrication Order 10-3530-203-10-2 for clothing sewing machine.

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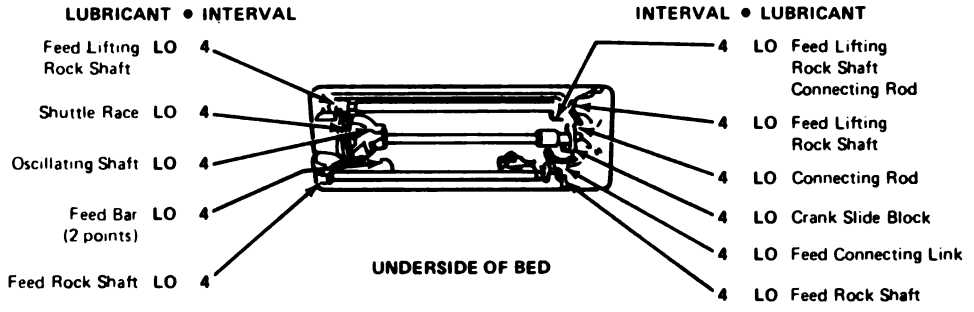
LUBRICANT • INTERVAL
Feed Lifting Rock Shaft LO 4
Shuttle Race LO 4
Oscillating Shaft LO 4
Feed Bar (2 points) LO 4
Feed Rock Shaft LO 4
UNDERSIDE OF BED
INTERVAL • LUBRICANT
4 LO Feed Lifting Rock Shaft Connecting Rod
4 LO Feed Lifting Rock Shaft
4 LO Connecting Rod
4 LO Crank Slide Block
4 LO Feed Connecting Link
4 LO Feed Rock Shaft

LUBRICANTS	EXPECTED TEMPERATURES	INTERVALS
LO-Lubricating Oil, General Purpose	all temperatures	Intervals given are hours of normal operation.
GAA-Grease, Automotive and Artillery	all temperatures	

FOLD FOLD

1

NOTES:

1. MOTOR. Lubricate oil points with two or three drops of LO every 4 hours. Fill grease cups as necessary with GAA grease. Turn grease cup clockwise three turns every 250 hours.

A copy of the Lubrication Order will remain with the equipment at all times; instructions contained herein are mandatory.

BY ORDER OF THE SECRETARY OF THE ARMY:

HAROLD K. JOHNSON,
General, United States Army
Chief of Staff.

OFFICIAL:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

MEC 3530-203-10/44 (2)

Figure 1107.2. Continued.

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i. Check the starting treadle

(1) for bent, broken or loose components and loose mountings.

(2) to make sure the pulley brake lever engages the motor drive pulley with the drive motor when the treadle is depressed.

(3) to insure the pulley brake lever disengages the drive pulley when the treadle is released during operation.

j. Check the motor switch for

(1) broken or bent motor switch.

(2) loose mountings in the switchbox.

(3) improper switch operation. (Make sure it turns the motor on and off.)

k. Check the presser bar lifter

(1) to make sure it is not bent or broken.

(2) for loose mountings.

(3) to make sure the lifter raises, locks, unlocks, and lowers the presser foot.

2. Lubricate the light-duty sewing machine using figure 1107.2 as a guide.

3. Prepare the light-duty sewing machine for operation.

a. Remove the bobbin case. (See fig 1107.3.)

(1) Position the needle bar at its highest point by turning the balance wheel toward you.

(2) Tilt the sewing machine head and lay it on the machine head rest pin.

(3) Open the latch on the bobbin case with the thumb and forefinger of your left hand. (Make sure to hold the latch open.)

b. Thread the bobbin winder (winding a bobbin). (See fig 1107.4.)

(1) Place a bobbin on the bobbin spindle.

(2) Use a cone of thread on the right side of the thread stand. Put the thread over and through the thread guide unwinder.

(3) Bring the thread down and through the hole in the tension bracket on the bobbin winder.

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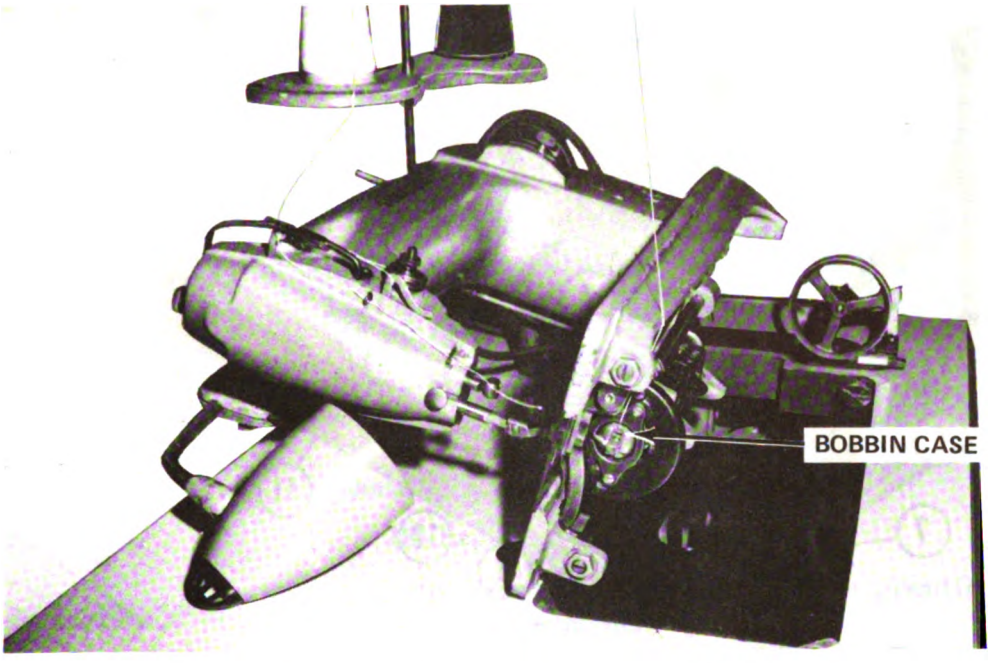

Figure 1107.3. Position and removal of bobbin case.

(4) Place the thread on the back of the tension assembly. Pull the thread between the tension disks.

(5) Bring the thread from the lower side of the tension assembly to the bobbin.

(6) Pass the thread around the bottom side of the bobbin. Wind the end of the thread around the bobbin several times.

(7) Push the bobbin winder pulley over against the machine belt as far as it will go by pressing on the stop latch thumb lever. Force the automatic stop latch to catch and hold the pulley against the drive belt.

NOTE: *To change the amount of thread wound on the bobbin before the automatic release operates, use the bobbin winder stop latch screw. To wind more thread on the bobbin, turn the screw to the right. To wind less thread, turn the screw to the left.*

NOTE: *If the thread fails to wind evenly on the bobbin or piles up on one side of the bobbin, loosen the screw that holds the tension bracket and move the bracket to the right or left, as required; then tighten the screw.*

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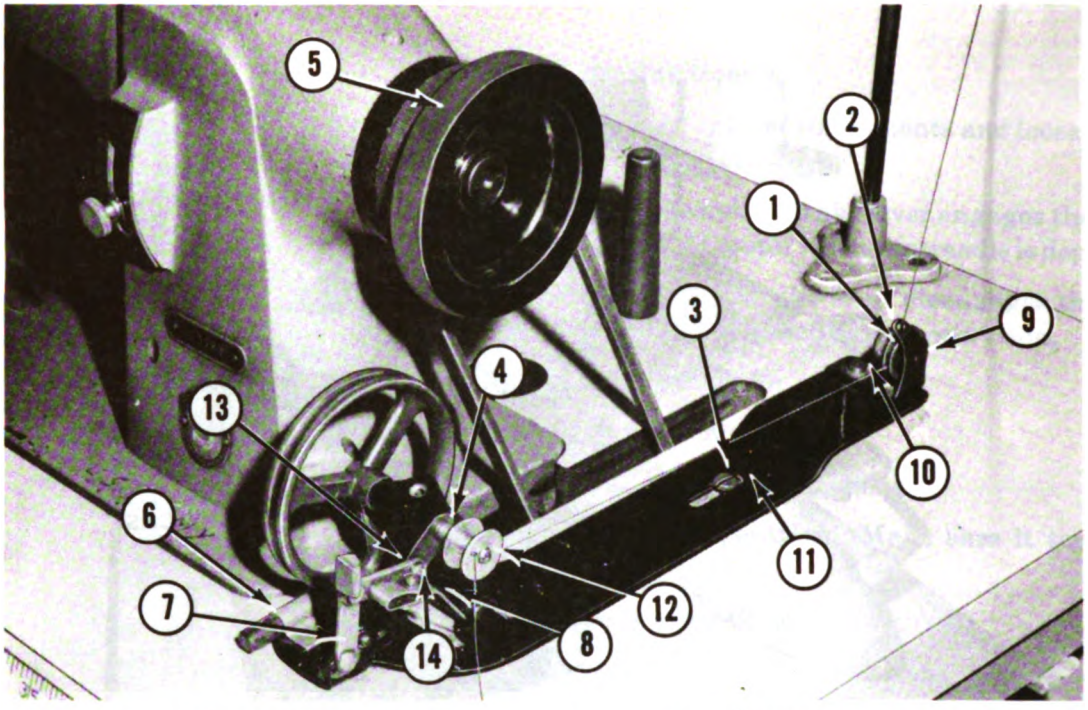

1	Tension disks	8	Frame
2	Thumb nut	9	Tension bracket
3	Wood screw	10	Tension bracket screw
4	Spindle	11	Tension bracket base
5	Pulley	12	Shuttle bobbin
6	Brake	13	Stop latch
7	Stop latch thumb lever	14	Stop latch screw

Figure 1107.4. Components of bobbin winder.

1

c. Thread the bobbin case.

(1) Hold the bobbin case so that the slot in the edge is near the top.

(2) Place the bobbin in the bobbin case.

(3) Pull the thread over the top of the bobbin and away from you.

(4) Place the thread under the bobbin tension spring and into the delivery eye. Pull the thread into the slot.

d. Replace the bobbin case. (See fig 1107.3.)

(1) Position the needle at its highest point by turning the balance wheel toward you.

(2) Tilt the machine head back and let it rest on the machine rest pin.

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(3) Hold the latch open with the thumb and forefinger of the left hand. Place the bobbin case on the center stud of the shuttle body.

(4) Place the bobbin case in the slot of the position plate.

(5) Return machine head to the upright position.

e. Remove and install the needle.

(1) Position the needle bar at its highest point by turning the balance wheel toward you.

(2) Remove the needle.

(a) Use a straight screwdriver to loosen the needle clamp screw.

(b) Make sure the needle does not drop down into the shuttle race assembly.

(3) Replace the needle.

(a) Select the correct needle for the thread to be used and the item to be repaired.

(b) Place the needle up in the needle clamp as far as it will go.

(c) Make sure the long groove of the needle will be at your left.

(d) Tighten the needle clamp screw.

1

f. Thread the machine (fig 1107.5.).

(1) Thread the machine stand by bringing the thread up from the cone and from the back to the front through the thread guide unwinder.

(2) Thread the spool pin.

(a) Pass the thread through the top hole of the first spool pin.

(b) Pass the thread through the top hole of the second spool pin.

(3) Thread the thread retainer by passing the thread through the top hole from right to left, the middle hole from left to right, and the bottom hole from right to left.

(4) Thread the tension disks.

(a) Pass the thread down between the tension disks with the thread running from right to left under the tension controller stud.

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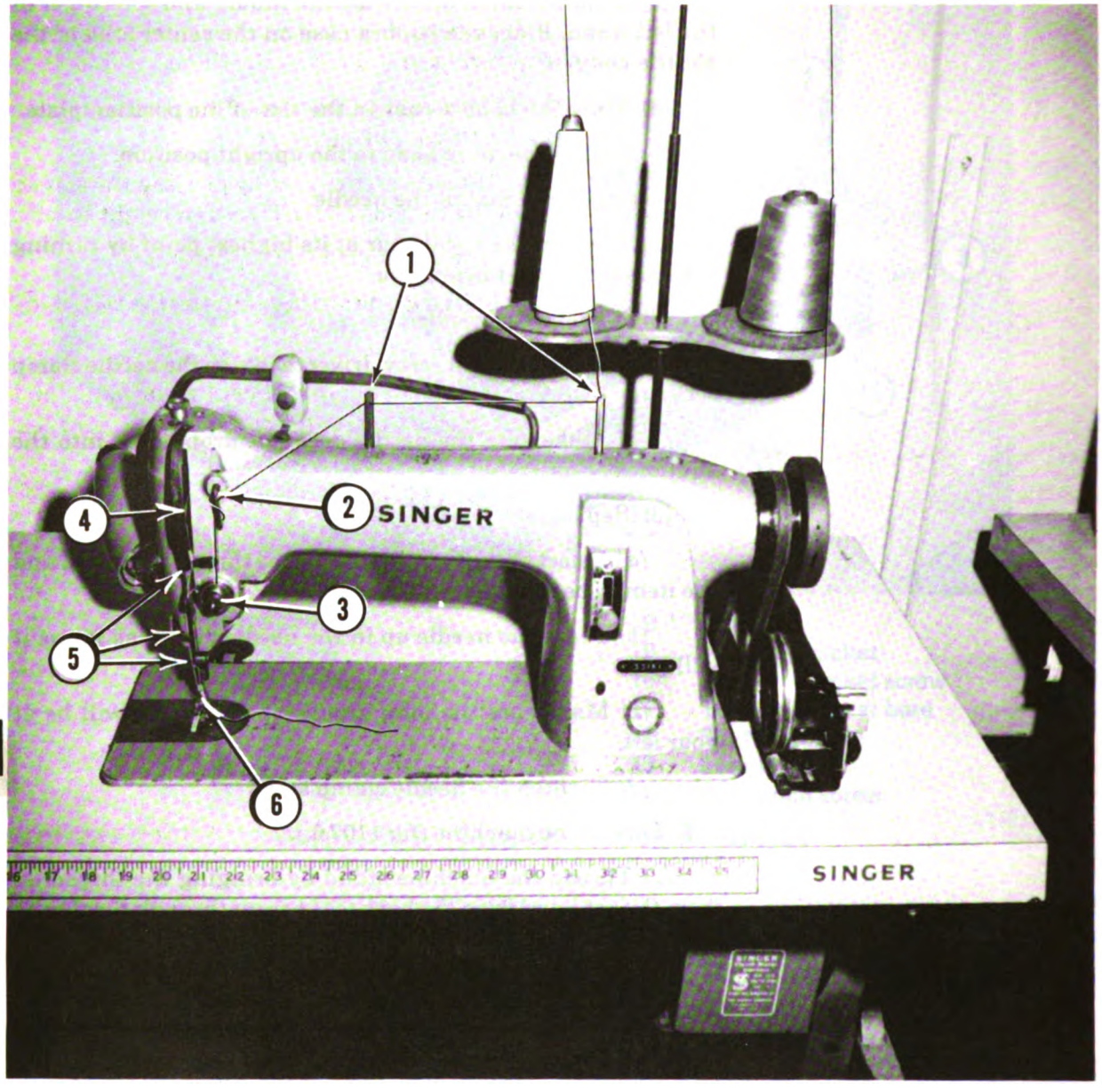

1 spool pin
2 thread retainer
3 tension disk and spring
4 takeup lever
5 thread guides
6 needle eye

Figure 1107.5. Threading the machine.

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(b) Bring the thread around the tension controller, over the thread takeup spring, and down to the thread regulator.

(c) Pass the thread under the hook of the thread takeup spring and up to the thread takeup lever.

(5) Thread the thread takeup lever by passing the thread through the hole in the thread takeup lever from right to left.

(6) Thread the thread top guide on the faceplate.

(7) Thread the thread guide on the bottom of the faceplate.

(8) Thread the needle guide.

(a) Hold the end of the thread in your right hand, and bring the thread up into a horizontal position with your left hand.

(b) Snap the thread through the needle bar guide.

(9) Thread the needle.

(a) Pass the thread through the eye of the needle from left to right.

(b) Bring about 6 inches of thread through the needle.

g. Catch the bobbin thread.

(1) Raise the presser bar lifter to lock the presser foot in its raised position.

(2) With your left hand, hold the end of the thread a little slack and toward the upright of the arm of the machine.

(3) With the right hand, turn the balance wheel toward you until the needle moves down from its highest position and back to its highest position. If the needle is correctly timed, it will catch the bobbin thread.

(4) Pull the thread up, drawing the bobbin thread up through the hole in the throat plate. Lay both threads (about 3 to 6 inches each) back under and behind the presser foot.

4. Operate the light-duty sewing machine.

a. Place material under the presser foot.

b. Lower the presser foot by pulling down the presser bar lever.

c. Insert the needle into the material by manually turning the balance wheel toward you.

d. Turn on the machine by placing the motor OFF/ON switch in the ON position.

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e. Press the machine treadle with your right foot, and sew a straight row of stiches on the material. (This will determine if adjustments are needed.)

f. Turn off the machine by placing the machine motor switch to the OFF position.

5. Perform after-operation maintenance.

a. Remove the shuttle race assembly.

(1) Tilt the machine head forward and let it rest on the rest pin.

(2) Remove the shuttle race screws and race. The needle bar must be in its highest position. Turn the screws to the left (fig 1107.6). Place your left index finger on the shuttle body stud and pull out and down. (Refer to fig 1107.7.)

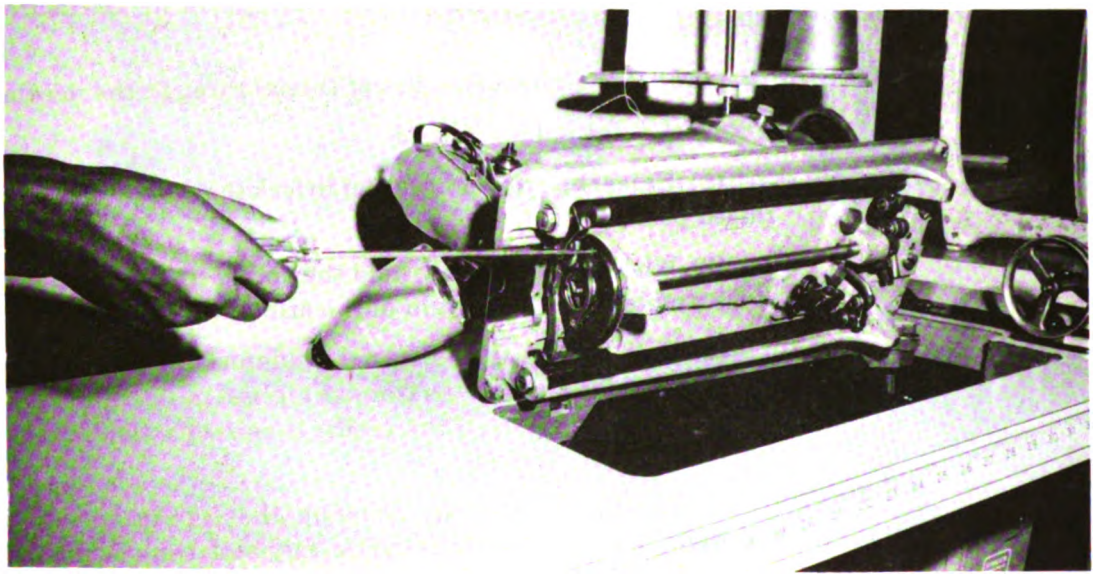

Figure 1107.6. Loosen the shuttle race screws.

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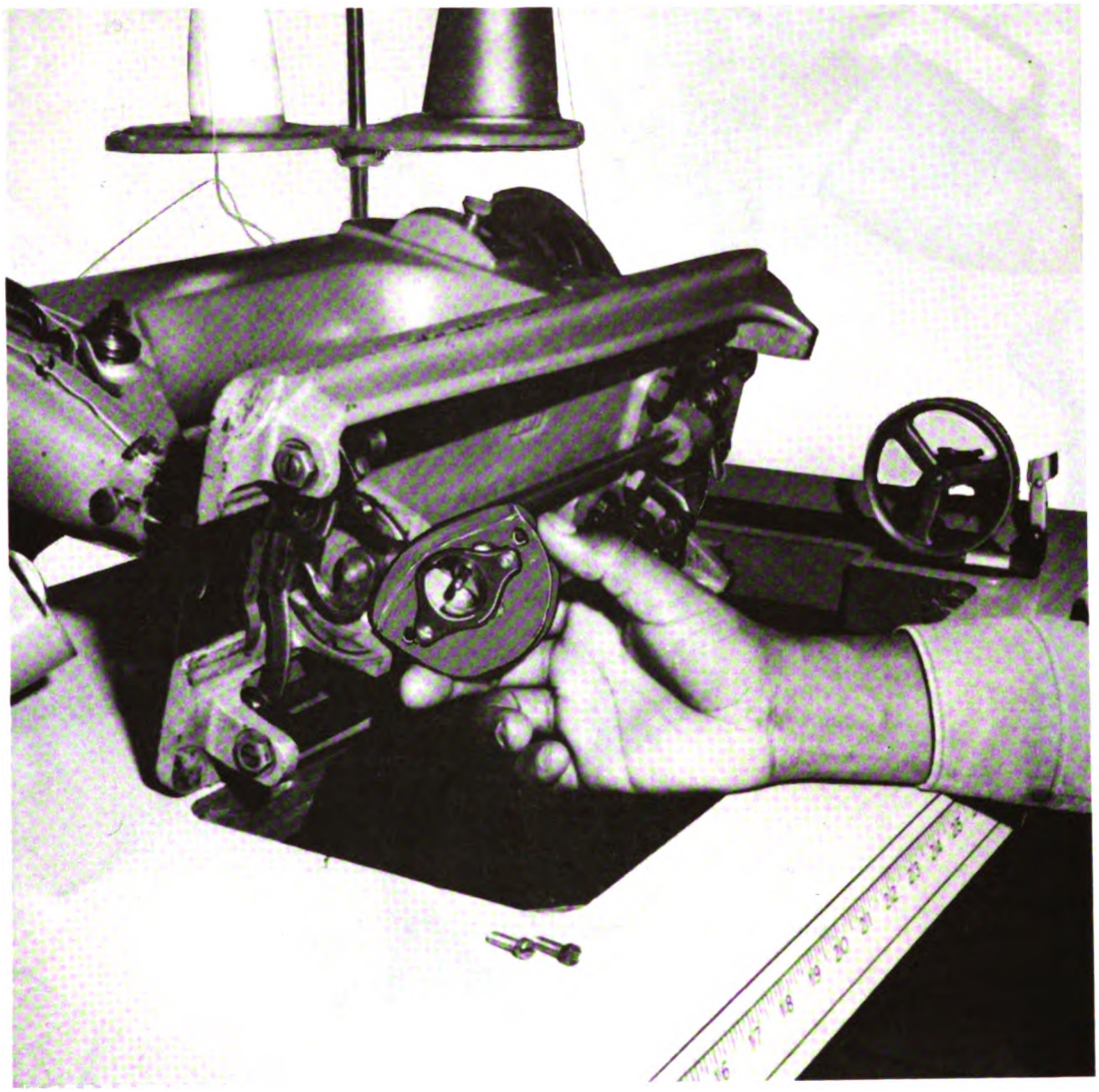

Figure 1107.7. Pull shuttle body stud out and down to remove it.

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Figure 1107.8. Remove shuttle body.

(3) Remove the shuttle body. The back of race must be face up. Turn the shuttle body and pull up until the body slides out the back. (Refer to fig 1107.8.)

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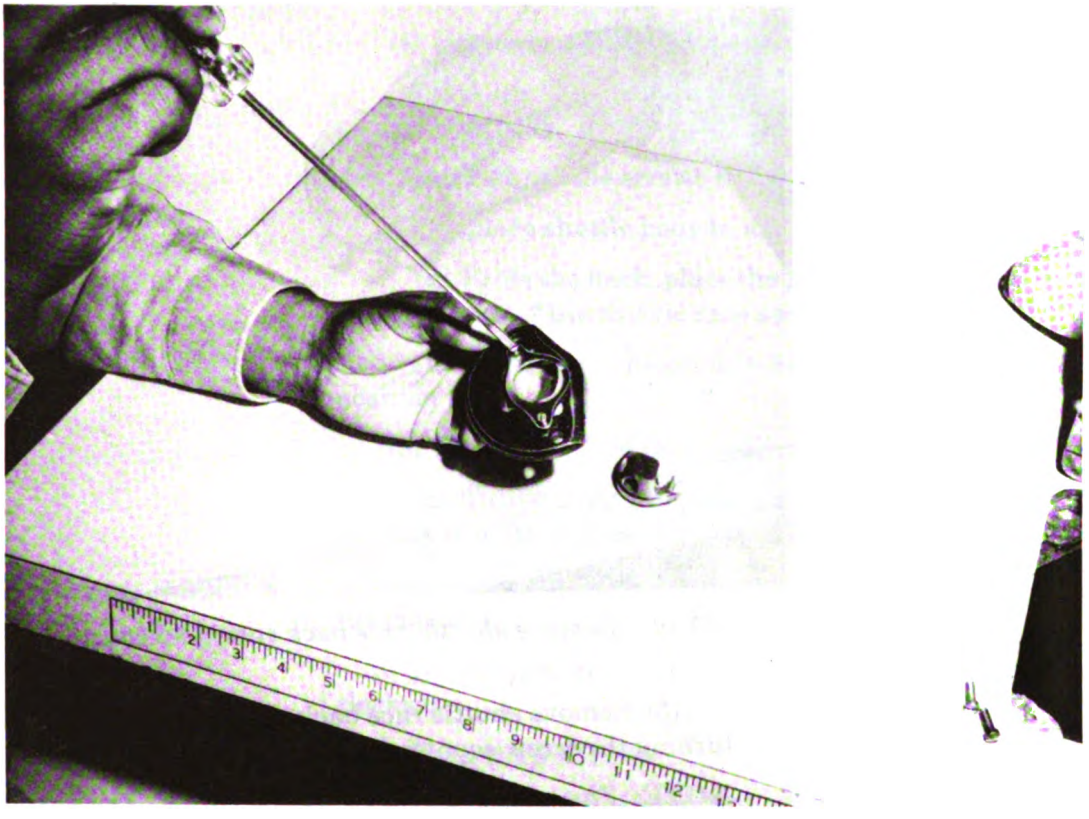

Figure 1107.9. Remove position plate screws.

(4) Remove position plate screws and position plate by turning the screws counterclockwise. (Refer to fig 1107.9.)

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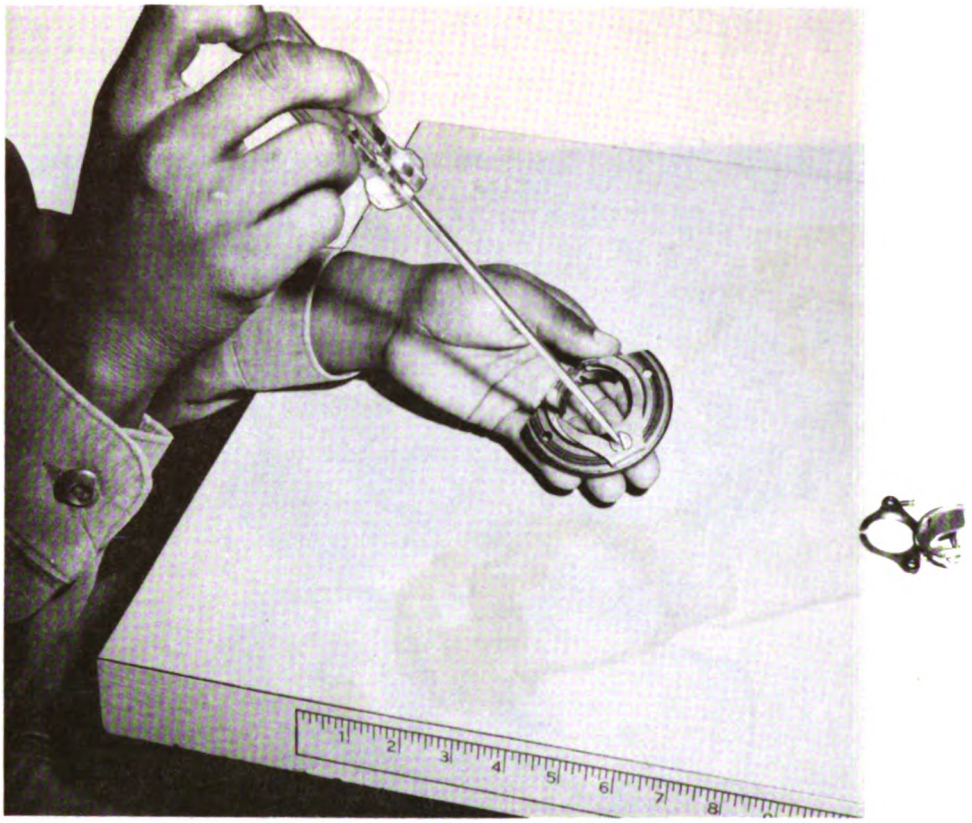

Figure 1107.10. Remove shuttle race back spring screw.

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(5) Remove shuttle race back spring screw and spring by turning the screw counterclockwise.

NOTE: *The spring acts as a safety clutch. The spring will expand when the shuttle race becomes extremely dirty, causing the machine to bind. (Refer to fig 1107.10.)*

b. Clean the shuttle race.

(1) Clean the shuttle race assembly using a rag that has a light coat of oil on it.

(2) Remove all dirt, dust, and lint from the shuttle race with a clean dry cloth.

c. Install the shuttle race.

(1) Hold the shuttle race in your left hand with the cap up and the front side to your left.

(2) Replace the shuttle race back on the shuttle race body.

(a) The beveled edges on the opening of the shuttle back must face away from the body.

(b) The opening in the shuttle back must be at the top of the shuttle body.

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(3) Replace shuttle race backspring screw and tighten it.

(a) Make sure the backspring is evenly spaced between the dowel pins.

(b) Align the backspring with the hole in the shuttle race body.

(4) Replace position plate and screws.

(a) Align the position plate holes with the holes in the shuttle race body.

(b) Tighten the screws by turning them clockwise.

(5) Replace shuttle body in shuttle race assembly.

(a) From the back, place the point of the shuttle body in at the bottom of the shuttle race assembly.

(b) Make sure the shuttle body center stud faces the position plate.

(6) Replace shuttle race assembly.

(a) Turn the balance wheel until the needle bar connecting link is at its highest position.

(b) Align the holes in the shuttle body with the holes in the machine.

(c) Replace the screws and tighten them by turning clockwise.

1

d. Clean the machine.

(1) Remove all dirt, lint, and grit from all moving parts.

(2) Cover the machine.

REFERENCES:

The performance measures give you all the information you need to know to complete this task. No additional references are required.

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■ 101-513-1108

TROUBLESHOOT THE LIGHT-DUTY SEWING MACHINE

CONDITIONS: You are working in the operations area of a fabric repair shop. A light-duty sewing machine won't work. Your supervisor has instructed you to locate and correct the malfunction. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: one fully assembled light-duty sewing machine, Phillips and flat-tip screwdriver set, wrench set, sash brush, machine oil, and DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

STANDARD: You must troubleshoot each light-duty sewing machine within 20 minutes by completing the performance measures in sequence without error. You must determine the probable cause for each malfunction and take the appropriate corrective actions.

PERFORMANCE MEASURES:

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1. Troubleshoot the light-duty sewing machine for the following problems. (See table 1108.)

   a. Needle thread breaks.

   b. Needle breaks.

   c. Bobbin thread breaks.

   d. Stitches skip or fail to lock.

   e. Thread balls up under throat plate.

   f. Stitches do not lock.

   g. Stitch is too tight.

   h. Stitch is too loose.

   i. Seams draw.

   j. Stitches are uneven or piled up.

   k. Feed dog strikes throat plate.

   l. Lamp does not light while switch is in ON position.

   m. Motor does not start while switch is in ON position.

   n. Motor makes unusual noise.

   o. Motor does not pull the load.

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Table 1108. Troubleshooting Information for the Light-Duty Sewing Machine.

MALFUNCTION	POSSIBLE CAUSES	ACTION
Needle thread breaks.	**Thread is too heavy.**	**Use thread of the same color and texture as item to be sewn.**
	Thread is damp or defective.	**Use dry, smooth thread.**
	Machine is not threaded correctly.	**Thread the light-duty machine head and needle.** **Thread the machine.** (1) Thread the machine stand by bringing the thread up from the cone and from the back to the front through the thread guide unwinder. (2) Thread the spool pin. Pass the thread through the top hole of the first spool pin. Pass the thread through the top hole of the second spool pin. (3) Thread the thread retainer by passing the thread through the top hole from right to left, the middle hole from left to right, and the bottom hole from right to left. (4) Thread the tension disks. Pass the thread down between the tension disks with the thread running from right to left under the tension controller stud. Bring the thread around the tension controller over the thread takeup spring down to the thread regulator. Pass the thread under the hook of the thread takeup spring and up to the thread takeup lever. (5) Thread the thread takeup lever by passing the thread through the hole in the thread takeup lever from right to left. (6) Thread the thread top guide on the faceplate. (7) Thread the thread guide on the bottom of the faceplate. (8) Thread the needle guide. Hold the end of the thread in your right hand, and bring the thread up into a horizontal position with your left hand. Snap the thread through the needle bar guide.

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Table 1108 (Cont)

MALFUNCTION	POSSIBLE CAUSES	ACTION
		(9) Thread the needle. Pass the thread through the eye of the needle from left to right. Bring about 6 inches of thread through the needle. **Catch the bobbin thread.** (1) Raise the presser bar lifter to lock the presser foot in its raised position. (2) With your left hand, hold the end of the thread a little slack and toward the upright of the arm of the machine. (3) With the right hand, turn the balance wheel toward you until the needle moves down from its highest position and back to its highest position. If the needle is correctly threaded, it will catch the bobbin thread. (4) Pull the thread up, drawing the bobbin thread up through the hole in the throat plate. Lay both threads (about 3 to 6 inches each) back under and behind the presser foot. **Regulate stitch length.** (1) Use the stitch-regulating thumbscrew located on the vertical arm on your right to regulate the length of the stitch. (2) Turn the stitch-regulating screw to the left to loosen it. Slide it up to shorten the stitch and down to lengthen the stitch. (Normally the machine should be set to sew 12 to 16 stitches per inch.) Tighten the screw so it will stay in a set position.
	Needle is not installed correctly.	**Remove and install the needle.** (1) Turn the balance wheel toward you until the needle is at its highest point. (2) Loosen the needle setscrew. (3) Remove the needle from the needle bar. (4) Check the needle for serviceability. (5) Install a new needle into the needle bar. The long groove of

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Table 1108 (Cont)

MALFUNCTION	POSSIBLE CAUSES	ACTION
		the needle must be on your left. (6) Tighten the setscrew securely.
	Thread tension is too great.	**Adjust the needle thread tension by turning the tension thumbnut to the right to increase tension or to the left to decrease tension.**
	Needle is defective, blunted, or bent at the point.	**Install a serviceable needle.**
Needle breaks.	**Needle is loose in the clamp.**	**Tighten the needle setscrew.**
	Needle is of wrong class or variety.	**Use needle size 18, class 16, and variety 87.**
	Presser foot is loose.	**Report this to your supervisor.**
Bobbin thread breaks.	**Thread is damp or defective.**	**Use dry, smooth thread.**
	Bobbin tension is too great.	**Adjust the bobbin thread tension by turning the regulating screw to the right to increase tension or to the left to decrease tension.**
		Remove the bobbin case from the machine. (1) Tilt the machine head until it comes to rest on the machine rest pin. (2) Position the needle at its highest point by turning the balance wheel toward you. (3) Remove the bobbin case from the machine. (4) Remove the bobbin from the bobbin case.
	Bobbin case is incorrectly threaded.	**Thread the bobbin case.** (1) Hold the bobbin case so that the slot in the edge is near the top. (2) Place the bobbin in the bobbin case. (3) Pull the thread over the top of the bobbin and away from you. (4) Place the thread under the bobbin tension spring and into the delivery eye. Pull the thread into the slot.
		Replace the bobbin case. (1) Position the needle at its highest point by turning the balance wheel toward you.

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Table 1108 (Cont)

MALFUNCTION	POSSIBLE CAUSES	ACTION
		(2) Tilt the machine head back and let it rest on the machine rest pin. (3) Hold the latch open with the thumb and forefinger of the left hand. Place the bobbin case on the center stud of the shuttle body. (4) Place the bobbin case in the slot of the position plate and into the shuttle race assembly. (5) Return machine head to the upright position. (6) Sew a 2 to 3 inch stitch row on a piece of material to check bobbin thread breakage.
	Bobbin is wound unevenly, too loosely, or is too full to revolve freely.	**Adjust bobbin winder tension.** (1) If the tension is too tight, turn the tension-regulating thumbnut to your left. (2) If the tension is too loose, turn the tension-regulating thumbnut to your right. **Remove the bobbin case.** (1) Position the needle bar at its highest point by turning the balance wheel toward you. (2) Lift the sewing machine head and lay it on the machine head rest pin. (3) Open the latch on the bobbin case with the thumb and forefinger of your left hand. (Make sure you hold the latch open.) (4) Remove the thread from the bobbin. **Thread the bobbin winder.** (1) Place the bobbin on the bobbin spindle. (2) Use the cone of thread on the right side of the thread stand. Put the thread over and through the thread guide unwinder. (3) Bring the thread down and through the hole in the tension bracket on the bobbin winder. (4) Place the thread on the back of the tension assembly. Pull the thread between the tension disks. (5) Bring the thread from the underside of the tension assembly to the bobbin.

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Table 1108 (Cont)

MALFUNCTION	POSSIBLE CAUSES	ACTION
		(6) Pass the thread around the bottom side of the bobbin. Wind the end of the thread around the bobbin several times. (7) Push the bobbin winder pulley over against the machine belt as far as it will go by pressing on the stop latch thumb lever. Force the automatic stop latch to catch and hold the pulley against the drivebelt.
Stitches skip or fail to lock.	**Needle is not installed correctly.**	**See the correct procedure for installing the needle listed for the malfunction: needle thread breaks.**
	Needle bar is out of adjustment.	**Report this to your supervisor.** **Time the needle.** (1) Remove the throat plate by turning the throat plate screws to the left. (2) Remove the feed dog. Turn the balance wheel toward you until the point of the shuttle moves to the back of the machine and then forward to the center of the needle. (3) Remove the thumbscrews located on the bottom of the faceplate. (4) Pull up on the faceplate to remove it. (5) Raise or lower the needle bar so that the eye of the needle is one-sixteenth of an inch below the point of the shuttle body. (6) Replace the feed dog. (7) Replace the throat plate. (8) Replace the faceplate.
Thread balls up under the throat plate.	**Thread tension is out of adjustment.**	**See the correct action for thread tension listed for the malfunction "needle thread breaks."**
Stitches do not chain.	**Threading is not correct or threads are broken.**	**See the correct action for threading machine listed for malfunction "needle thread breaks."**
Stitch is too tight.	**Bobbin tension is too great.**	**See the correct action for bobbin tension listed for the malfunction "bobbin thread breaks."**

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Table 1108 (Cont)

MALFUNCTION	POSSIBLE CAUSES	ACTION
Stitch is too loose.	Thread tension is too loose.	See the correct action for thread tension listed for the malfunction "needle thread breaks."
Seems draw.	Thread tension is too tight.	See the correct action for thread tension listed for the malfunction "needle thread breaks."
	Operator is feeding material at an improper speed.	Operator must feed material in relation to machine speed.
Stitches are uneven or piled up.	Pressure is too light on the presser foot.	Report this to your supervisor
	Feed dogs are too low.	Report this to your supervisor.
Fead dogs strike the throat plate.	Feed dogs are out of adjustment.	Report this to your supervisor.
Lamp does not light when switch is in the ON position.	Light cord is not plugged into the electrical power receptacle.	Plug cord in.
	Light cord is broken.	Report this to your supervisor.
	Incandescent lamp (bulb) is burnad out.	Replace the lamp.
	Lamp assembly or switch is defective.	Report this to your supervisor.
	Electrical power receptacle is defective.	Report this to your supervisor.
Motor does not start when switch is in the ON position.	Power cable is not plugged into electrical power receptacle.	Plug power cable in.
	Power cable is broken.	Report this to your supervisor.
	Switch is defective.	Report this to your supervisor.
Motor makes unusual noises.	Motor is defective.	Shut down the sewing machine and report the noise to your supervisor.
Motor does not pull the load.	Drivebelt is slipping.	Report this to your supervisor.
	Voltage is not correct or the motor is faulty.	Report this to your supervisor.

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EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET

For use of this form, see TM 38-750; the proponent agency is the Office of the Deputy Chief of Staff for Logistics.

1. ORGANIZATION	2. NOMENCLATURE AND MODEL
133d MAINT Co DS	MACHINE, SEWING, LIGHT-DUTY-331K1

3. REGISTRATION/SERIAL/FSN	4a. MILES	b. HOURS	c. ROUNDS FIRED	d. HOT STARTS	5. DATE	6. TYPE INSPECTION
000-00-0000-000					12 MAY 19XX	DAILY-OPERATOR

7. APPLICABLE REFERENCE

TM NUMBER	TM DATE	TM NUMBER	TM DATE

INSTRUCTIONS - Perform each check listed in the TM applicable to the inspection performed. Following the sequence listed in pertinent TM, complete form as follows:

COLUMN a - Enter TM item number.

COLUMN b - Enter the applicable condition status symbol.

COLUMN c - Enter deficiencies and shortcomings.

COLUMN d - Show corrective action for deficiency or shortcoming listed in Column c.

COLUMN e - Individual ascertaining completed corrective action initial in this column.

STATUS SYMBOLS

"X"—Indicates a deficiency in the equipment that places it in an inoperable status.

CIRCLED "X"—Indicates a deficiency, however, the equipment may be operated under specific limitations as directed by higher authority or as prescribed locally, until corrective action can be accomplished.

HORIZONTAL DASH "(-)"—Indicates that a required inspection, component replacement, maintenance operation check, or test flight is due but has not been accomplished, or an overdue MWO has not been accomplished.

DIAGONAL "(/)"—Indicates a materiel defect other than a deficiency which must be corrected to increase deficiency or to make the item completely serviceable.

LAST NAME INITIAL IN BLACK, BLUE-BLACK INK, OR PENCIL-Indicates that a completely satisfactory condition exists.

FOR AIRCRAFT-Status symbols will be recorded in red.

ALL INSPECTIONS AND EQUIPMENT CONDITIONS RECORDED ON THIS FORM HAVE BEEN DETERMINED IN ACCORDANCE WITH DIAGNOSTIC PROCEDURES AND STANDARDS IN THE TM CITED HEREON.

8a. SIGNATURE (Person(s) performing inspection)	8b. TIME	9a. SIGNATURE (Maintenance Supervisor)	9b. TIME	10. MAN HOURS REQ
Joe Smith	0830			

TM ITEM NO. a	STATUS b	DEFICIENCIES AND SHORTCOMINGS c	CORRECTIVE ACTION d	INITIAL WHEN CORRECTED e
1		MOTOR MAKES UNUSUAL NOISES		
2		FEED DOGS ARE TOO LOW		
3		DRIVEBELT IS SLIPPING		

RECORD ON THIS FORM ONLY DEFICIENCIES THAT CANNOT BE CORRECTED AT YOUR LEVEL. SEE SAMPLE ENTRIES.

DA FORM 1 APR 79 2404 — Replaces edition of 1 Jan 64, which will be used

Figure 1108. DA Form 2402 (Equipment Inspection and Maintenance Worksheet).

2. Record on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) all malfunctions which you cannot correct. (See fig 1108.)

REFERENCES:

The performance measures give you all the information you need to know to complete this task. No additional references are required.

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■ 101-513-1109

PREPARE AND OPERATE THE DARNING MACHINE

CONDITIONS: You are working in the sewing machine operation area. Your supervisor has instructed you to prepare and operate the darning machine to repair a clothing item. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: a fully assembled darning machine, straight and Phillips screwdrivers, wrench set, cleaning rags, 1-inch sash brush, machine oil, pliers, DA Form 2404 (Equipment Inspection and Maintenance Worksheet), Lubrication Order 10-3530-203-10-3, and thread and needle.

STANDARD: You must complete all performance measures in sequence, without error, within 20 minutes, to prepare and operate one darning machine. The machine must be threaded without missing any thread points, and tension must be adjusted to sew a smooth darn.

PERFORMANCE MEASURES:

1

1. Perform operator's before-operation maintenance using the preventive maintenance daily checklist. (See fig 1109.1.)

a. Inspect the table assembly

(1) for cut, cracked, broken, warped, or dirty tabletop.

(2) for loose or missing bolts and nuts and for loose mounting to the folding stand.

(3) to make certain it is level.

(4) for bent or broken components.

(5) for loose or missing bolts and nuts on components.

(6) for loose mounting to the table assembly.

b. Inspect the machine head for

(1) dirt and grease deposits.

(2) bent, broken, loose, or missing components and for loose mounting.

(3) broken or excessively worn needle point.

(4) bent or broken needle shaft and for loose mounting.

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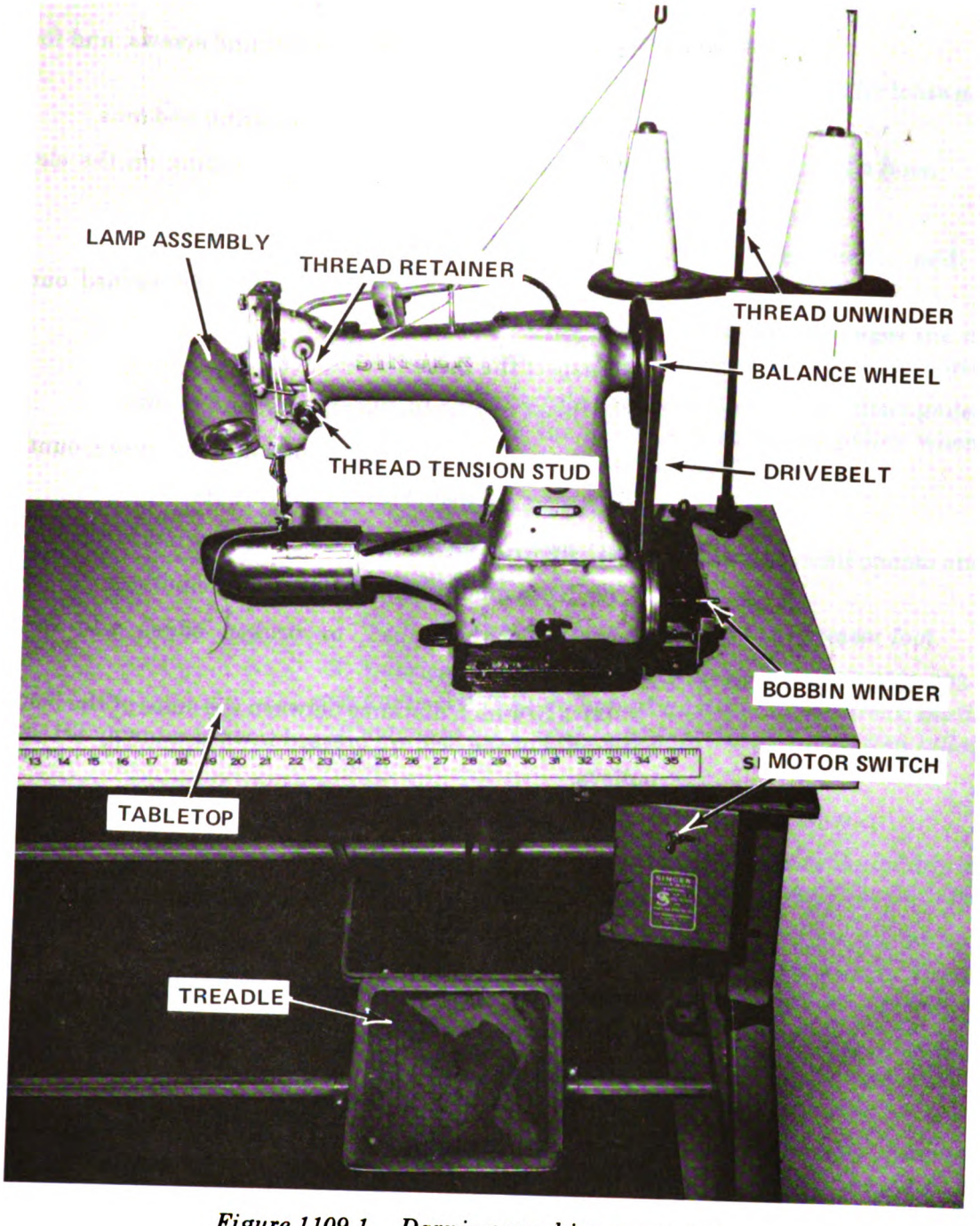

Figure 1109.1. Darning machine components.

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c. Inspect the lamp assembly for

(1) loose or missing bolts, nuts, and screws, and for loose mounting.

(2) dirty, cracked, or broken housing and lens.

(3) frayed insulation or broken wiring on the electrical cord.

(4) broken lamp switch.

(5) improper operation of switch and burned out lamp (bulb).

d. Inspect the thread unwinder for

(1) loose or missing bolts, nuts, and screws.

(2) bent or broken components and for loose mounting.

e. Inspect the drivebelt and pulleys for

(1) broken, frayed, or excessively worn drivebelt.

(2) loose mounting of the belt on the pulleys.

(3) cracked, chipped, or broken edges and for loose mounting.

(4) a 3/4-inch distance between the sides of the belt when both sides of the belt are pressed inward midway between the pulleys.

f. Inspect the bobbin winder for

(1) bent, broken, loose, or missing components and for loose mounting.

(2) excessively worn leather brake.

(3) incorrect tension of the thread tension spring.

(4) incorrect adjustment of the pulley with the drivebelt.

g. Inspect the electric motor for

(1) dirty surfaces and grease deposits and for bent, cracked, or broken housing.

(2) loose or missing bolts and nuts.

(3) loose electrical connections and loose mounting.

NOTE: *Observe the motor for excessive vibration and listen for unusual noise during operation.*

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h. Inspect the folding stand

(1) for bent or broken components.

(2) for loose or missing bolts and nuts and for loose mounting to the table assembly.

(3) to make certain the stand is level on the floor.

i. Inspect the starting treadle

(1) for bent, broken, or loose components and loose mounting.

(2) to see that the pulley brake lever engages the motor drive pulley with the drive motor when the treadle is depressed.

(3) to make certain the pulley brake lever disengages the drive pulley from the motor and stops the pulley when the treadle is released during operation.

j. Inspect the knee lifter

(1) for bent, broken, loose, or missing components and for loose mounting.

(2) to see that it raises and lowers the presser foot.

2. Lubricate the darning machine using LO 10-3530-203-10-3 as a guide. (**NOTE:** *In humid, dusty, or sandy areas, the darning machine may need to be lubricated more often.) (See fig 1109.2.)*

1

3. Prepare the darning machine for operation.

a. Push back the slide stop and slide. Raise the bobbin latch and remove the bobbin from the bobbin case. (See fig 1109.3.)

b. Wind thread on the bobbin by placing the bobbin on the bobbin winder spindle. Push it on as far as it will go. Thread it correctly to keep the thread even and smooth on the bobbin.

NOTE: *The bobbin may be wound while the machine is sewing. However, if no fabric is under the needle, make sure the needle thread is pulled out of the eye of the needle.*

c. Lock the presser foot in the raised position by pressing the knee lifter to the right. The needle thread should be pulled from the needle so thread will not ball up in the shuttle race assembly.

(1) To change the amount of thread wound on the bobbin before the automatic release operates, use the bobbin winder

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LUBRICATION ORDER LO10-3530-203-10-3

22 October 1965

CLOTHING, REPAIR SHOP, TRAILER MTD, ARMY MODEL SPV34, YORK ASTRO MODEL D8700337, TEXTILE REPAIR SHOP, TRAILER MTD, ARMY MODEL SPV35, YORK ASTRO MODEL D8700447, MACHINE, SEWING, DARNING SINGER MODEL 47W70

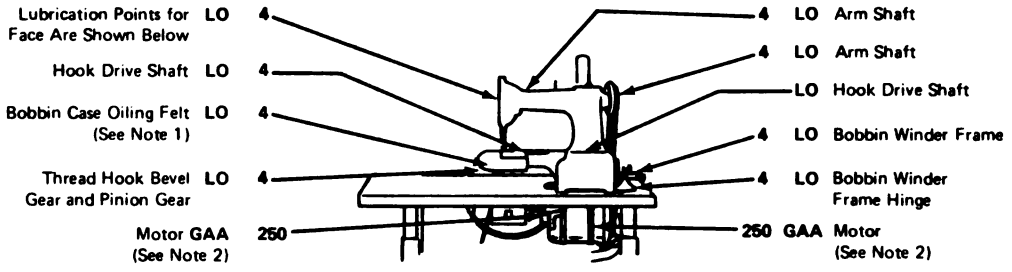
Reference LO 10-3530-203-10-1 and 2, C9100-IL

Intervals are based on normal hours of operations. Reduce to compensate for abnormal operations and severe conditions. During inactive periods sufficient lubrication must be performed for adequate preservation.

Clean parts with SOLVENT drycleaning. Dry before lubricating.
Apply two to three drops of LO at each friction point unless otherwise noted.

INTERVAL • LUBRICANT

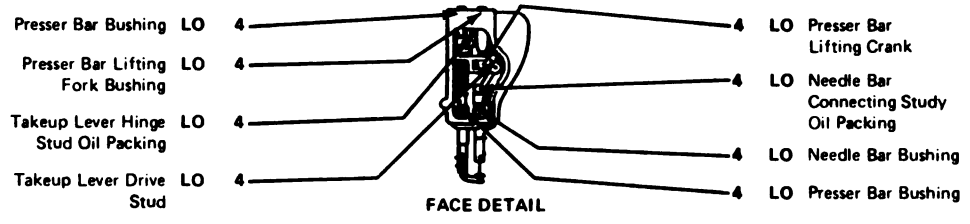
LUBRICANT • INTERVAL


Lubrication Points for Face Are Shown Below LO 4
Hook Drive Shaft LO 4
Bobbin Case Oiling Felt LO 4 (See Note 1)
Thread Hook Bevel Gear and Pinion Gear LO 4
Motor GAA 250 (See Note 2)
4 LO Arm Shaft
4 LO Arm Shaft
LO Hook Drive Shaft
4 LO Bobbin Winder Frame
4 LO Bobbin Winder Frame Hinge
250 GAA Motor (See Note 2)

HEAD ASSEMBLY (FRONT) AND MOTOR

FOLD FOLD

1


Presser Bar Bushing LO 4
Presser Bar Lifting Fork Bushing LO 4
Takeup Lever Hinge Stud Oil Packing LO 4
Takeup Lever Drive Stud LO 4
4 LO Presser Bar Lifting Crank
4 LO Needle Bar Connecting Study Oil Packing
4 LO Needle Bar Bushing
4 LO Presser Bar Bushing

FACE DETAIL

—KEY—

LUBRICANTS	EXPECTED TEMPERATURES	INTERVALS
LO- Lubricating Oil, General Purpose	all temperatures	Intervals given are in hours of normal operation.
GAA- Grease, Automotive and Artillery	all temperatures	

NOTES:

1. **BOBBIN CASE OILING FELT.** Keep felt pad on the side of the bobbin case to lubricate the hook race. When this pad is wet with oil it appears nearly black; when it appears light green it is dry. Check pad for oil each time a bobbin is replaced and oil if necessary.

2. **MOTOR.** Lubricate oil points with two or three drops of LO every 4 hours. Fill grease cups as necessary with GAA grease. Turn grease cups clockwise three turns every 250 hours

Copy of this Lubrication Order will remain with the equipment at all times; instructions contained herein are mandatory.

BY ORDER OF THE SECRETARY OF THE ARMY:

HAROLD K. JOHNSON,
General, United States Army
Chief of Staff.

OFFICIAL:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

MEC 3530-203-10/46

Figure 1109.2. Lubrication Order 10-3530-203-10-3 for darning machine.

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stop latch screw. To wind more thread on the bobbin, turn the screw to the right. To wind less thread, turn the screw to the left.

(2) If the thread fails to wind evenly on the bobbin or piles up on one side of the bobbin, loosen the screw that holds the tension bracket. Move the bracket to the right or left, as required, then tighten the screw.

d. Thread the bobbin case.

(1) Position the bobbin in the bobbin case. Pull the thread through the tension slot clockwise.

(2) Close the bobbin latch.

(3) Pull the thread counterclockwise through the tension slot.

(4) Position the slide stop over the bobbin case.

e. Remove and install the needle.

(1) Position the needle bar at its highest point by turning the balance wheel toward you.

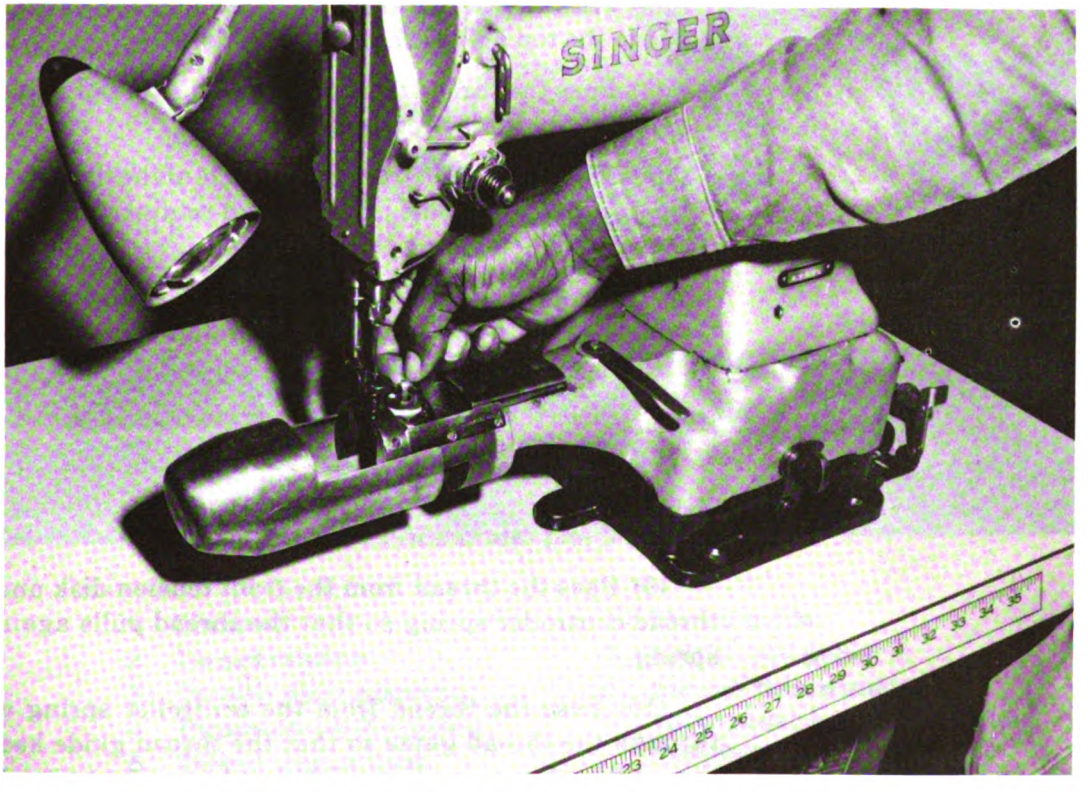

Figure 1109.3. Bobbin position in darning machine.

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(2) Remove the needle.

(a) Use a straight screwdriver to loosen the needle setscrew.

(b) Make sure the needle does not drop down into the shuttle case assembly.

(3) Replace the needle.

(a) Select a needle that is right for the thread to be used and the item to be repaired.

(b) Place the needle in the needle clamp as far up as it will go.

(c) Make sure the long groove of the needle is to your left.

(d) Tighten the needle clamp screw.

f. Thread the darning machine. (See fig 1109.4.)

(1) Pass the thread up from the thread cone and over the thread unwinder.

(2) Pass the thread from the back to the front through the bottom hole of the thread guide.

(3) Pass the thread from the bottom eyelet of the thread guide to the top hole of the thread guide.

1

(4) Pass the thread from the top of the thread guide to the top hole of the thread retainer.

(5) Pass the thread from the top hole of the thread retainer through the middle hole of the thread retainer. (Thread from right to left when facing the machine.)

(6) Pass the thread from the middle hole of the thread retainer to the bottom hole of the retainer and through it (threading from right to left).

(7) Pass the thread from the bottom hole of the thread retainer to the thread tension assembly.

(8) Pass the thread from the tension disk around the tension stud and into the front tension disk.

(9) Pass the thread from the front tension disk under the thread-controller spring so that the thread pulls against the spring.

(10) Pass the thread from the controller spring up and through the thread guide so that the thread guide keeps the thread from becoming loose or twisted.

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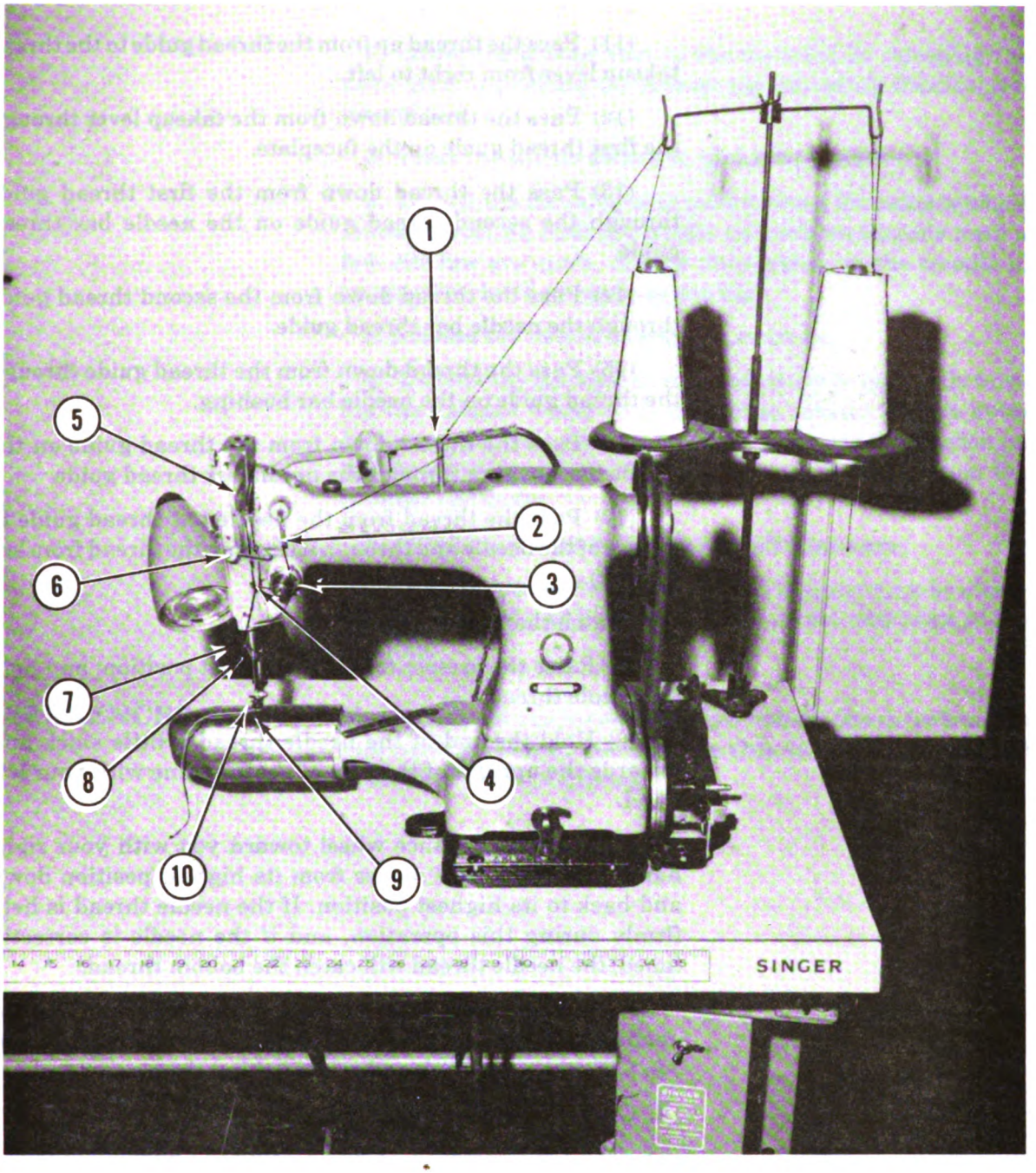

1 Pin spool
2 Thread retainer
3 Tension disks assembly
4 Thread-controller spring
5 Thread takeup lever
6 Thread guide
7 First thread guide
8 Second thread guide
9 Third thread guide (Needle bar bushing)
10 Eye of the needle

Figure 1109.4. Darning machine threading sequence.

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(11) Pass the thread up from the thread guide to the thread takeup lever from right to left.

(12) Pass the thread down from the takeup lever through the first thread guide on the faceplate.

(13) Pass the thread down from the first thread guide through the second thread guide on the needle bar thread guide.

(14) Pass the thread down from the second thread guide through the needle bar thread guide.

(15) Pass the thread down from the thread guide through the thread guide on the needle bar bushing.

(16) Pass the thread down from the thread guide on the needle bar bushing through the needle bar thread guide.

(17) Pass the thread from the needle bar thread guide to the eye of the needle and through it (feeding the thread from left to right).

g. Catch the bobbin thread.

(1) Raise the presser foot to its highest position, and hold the needle thread.

(2) Hold the end of the needle thread a little slack and towards the upright of the arm of the machine with your left hand.

(3) Turn the balance wheel toward you with your right hand until the needle moves from its highest position down and back to its highest position. If the needle thread is held firmly during this operation, and if the needle is correctly timed, the needle thread will catch the bobbin thread.

(4) Pull the needle thread up, drawing the bobbin thread up through the hole in the throat plate. Lay both threads (about 3 to 6 inches each) back under and behind the presser foot.

4. Operate the darning machine.

a. Raise the presser foot by pressing the knee lifter to the right or pushing the presser bar adjusting thumbscrew backward (away from you).

b. Place the material on the cylinder end cover of the machine; make sure the damaged area lies flat and does not pinch or pucker.

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c. Lower the presser foot on the material by releasing the knee lifter or pushing the presser bar adjusting thumbscrew toward you.

d. Press the starter switch to turn the machine on.

e. Darn the material by manually turning the balance wheel forward, holding both the needle and bobbin threads until a few stitches are made. (Check the tension on the treadle to engage the clutch to continue sewing.)

f. Release the treadle to stop the machine.

g. Remove the material from the machine by manually turning the balance wheel until the thread takeup lever is at its highest point. Raise the presser foot to release the tension on the thread and material. Cut the threads 6 inches from the cylinder end cover.

h. Press the starter switch to turn off the power.

5. Perform operator's after-operation maintenance by cleaning dirt, lint, grit, and excess oil from all moving parts of the machine.

REFERENCES:

The performance measures give you all the information you need to know to complete this task. No additional references are required.

1

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■ 101-513-1110

TROUBLESHOOT THE DARNING MACHINE

CONDITIONS: You are working in the operations area. A darning machine does not work. Your supervisor has instructed you to locate and correct the malfunction. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: one fully assembled darning machine, Phillips and flat tip screwdriver set, wrench set, sash brush, machine oil, test material, and DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

STANDARD: You must troubleshoot each darning machine within 20 minutes by completing the performance measures in sequence, without error. You must detemine the probable cause for each malfunction and take the appropriate corrective actions.

PERFORMANCE MEASURES:

1. Troubleshoot the darning machine for the following problems. (See table 1110.)

   a. Needle thread breaks.

   b. Needle breaks.

   c. Bobbin thread breaks.

   d. Stitches skip or fail to lock.

   e. Seams draw.

   f. Lamplight fails to light while switch is in ON position.

   g. Motor fails to start while switch is in ON position.

   h. Motor makes unusual noise.

   i. Motor does not pull the load.

2. Record on a DA Form 2404 (Equipment Inspection and Maintenance Worksheet) malfunctions you can't correct. (See fig 1110.)

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EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET

For use of this form, see TM 38-750; the proponent agency is the Office of the Deputy Chief of Staff for Logistics.

1. ORGANIZATION	2. NOMENCLATURE AND MODEL
133d MAINT CO DS	MACHINE, SEWING, DARNING - 47W70

3. REGISTRATION/SERIAL/FSN	4a. MILES	b. HOURS	c. ROUNDS FIRED	d. HOT STARTS	5. DATE	6. TYPE INSPECTION
000-00-0000-000	/	/	/	/	12 MAY 19XX	DAILY-OPERATOR

7. APPLICABLE REFERENCE			
TM NUMBER	TM DATE	TM NUMBER	TM DATE

INSTRUCTIONS - Perform each check listed in the TM applicable to the inspection performed. Following the sequence listed in pertinent TM, complete form as follows:

COLUMN a - Enter TM item number.

COLUMN b - Enter the applicable condition status symbol.

COLUMN c - Enter deficiencies and shortcomings.

COLUMN d - Show corrective action for deficiency or shortcoming listed in Column c.

COLUMN e - Individual ascertaining completed corrective action initial in this column.

STATUS SYMBOLS

"X"—Indicates a deficiency in the equipment that places it in an inoperable status.

CIRCLED "X"—Indicates a deficiency, however, the equipment may be operated under specific limitations as directed by higher authority or as prescribed locally, until corrective action can be accomplished.

HORIZONTAL DASH "(-)"—Indicates that a required inspection, component replacement, maintenance operation check, or test flight is due but has not been accomplished, or an overdue MWO has not been accomplished.

DIAGONAL "(/)"—Indicates a materiel defect other than a deficiency which must be corrected to increase deficiency or to make the item completely serviceable.

LAST NAME INITIAL IN BLACK, BLUE-BLACK INK, OR PENCIL-Indicates that a completely satisfactory condition exists.

FOR AIRCRAFT-Status symbols will be recorded in red.

ALL INSPECTIONS AND EQUIPMENT CONDITIONS RECORDED ON THIS FORM HAVE BEEN DETERMINED IN ACCORDANCE WITH DIAGNOSTIC PROCEDURES AND STANDARDS IN THE TM CITED HEREON.

8a. SIGNATURE (Person(s) performing inspection)	8b. TIME	9a. SIGNATURE (Maintenance Supervisor)	9b. TIME	10. MAN HOURS REQ
James Brown	0845			

TM ITEM NO. a	STATUS b	DEFICIENCIES AND SHORTCOMINGS c	CORRECTIVE ACTION d	INITIAL WHEN CORRECTED e
1		SEWING HOOK IS		
		MISSING		
2		DEFECTIVE MOTOR SWITCH		

RECORD ON THIS FORM ONLY DEFICIENCIES THAT CANNOT BE CORRECTED AT YOUR LEVEL. SEE SAMPLE ENTRIES.

DA FORM 2404 1 APR 79

Replaces edition of 1 Jan 64, which will be used

Figure 1110. Entries on DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

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Table 1110. Troubleshooting Information for the Darning Machine.

MALFUNCTION	POSSIBLE CAUSES	ACTION
Needle thread breaks.	**Thread is too heavy.**	**Use thread of the same color and texture as item to be sewed.**
	Thread is damp or defective.	**Use dry, smooth thread.**
	Machine is not threaded correctly.	**Thread the darning-duty machine head and needle.** **Thread the darning machine.** (1) Pass the thread up from the thread cone and over the thread unwinder. (2) Pass the thread from the back to the front through the bottom hole of the thread guide. (3) Pass the thread from the bottom eyelet of the thread guide to the top hole of the thread guide. (4) Pass the thread from the top of the thread guide to the top hole of the thread retainer. (5) Pass the thread from the top hole of the thread retainer through the middle hole of the thread retainer. (Thread from left to right when facing the machine.) (6) Pass the thread from the middle hole of the thread retainer to the bottom hole of the retainer and through it (thread from right to left). (7) Pass the thread from the bottom hole of the thread retainer to the thread tension assembly. (8) Pass the thread from the tension disk around the tension stud and into the front tension disk. (9) Pass the thread from the front tension disk under the thread-controller spring so that the thread pulls against the spring. (10) Pass the thread from the controller spring up and through the thread guide so that the thread guide keeps the thread from becoming loose or twisted. (11) Pass the thread up from the thread guide to the thread takeup lever from right to left. (12) Pass the thread down from the takeup lever through the first thread guide on the faceplate.

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Table 1110 (Cont)

MALFUNCTION	POSSIBLE CAUSES	ACTION
		(13) Pass the thread down from the first thread guide through the second thread guide on the needle bar thread guide. (14) Pass the thread down from the second thread guide through the needle bar thread guide. (15) Pass the thread down from the thread guide through the thread guide on the needle bar bushing. (16) Pass the thread down from the thread guide on the needle bar bushing through the needle bar thread guide. (17) Pass the thread from the needle bar thread guide to the eye of the needle and through it (feeding the thread from left to right). **Catch the bobbin thread.** (1) Raise the presser foot to its highest position, and hold the needle thread. (2) Hold the end of the needle thread a little slack and towards the upright of the arm of the machine with your left hand. (3) Turn the balance wheel toward you with your right hand until the needle moves from its highest position down and back to its highest position. If the needle thread is held firmly during this operation, and if the needle is correctly timed, the needle thread will catch the bobbin thread. (4) Pull the needle thread up, drawing the bobbin thread up through the hole in the thread plate. Lay both threads (about 3 to 6 inches each) back under and behind the presser foot.
	Needle is not installed correctly.	**Remove and install the needle.** (1) Turn the balance wheel toward you until the needle is at its highest position. (2) Loosen the needle setscrew. (3) Remove the needle from the needle bar. (4) Check the needle for serviceability.

1

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Table 1110 (Cont)

MALFUNCTION	POSSIBLE CAUSES	ACTION
		(5) Install a new needle into needle bar. The long groove of the needle must be on your left. (6) Tighten the setscrew securely.
	Thread tension is too great.	**Adjust the needle thread tension by turning the tension thumbnut to the right to increase tension or to the left to decrease tension.**
Needle breaks.	**Needle is defective, blunted, or bent at the point.**	**Install a serviceable needle.**
	Needle is loose in the clamp.	**Tighten the needle setscrew.**
	Needle is of wrong class or variety.	**Use needle size 18, class 126, and and variety 3.**
	Presser foot is loose.	**Adjust the presser foot pressure.** (1) Place a piece of material under the presser foot. (2) Adjust the pressure of the presser foot on material with the regulating thumbscrew. (3) Adjust the pressure on the vibrating presser foot by turning the thumbscrew on top of the machine head to the right to increase the pressure or to the left to decrease the pressure.
Bobbin thread breaks.	**Thread is damp or defective.**	**Use dry, smooth thread.**
	Bobbin tension is too great.	**Adjust the bobbin thread tension by turning the regulating screw to the right to increase tension or to the left to decrease tension.**
	Bobbin case is incorrectly threaded.	**Install the bobbin.** (1) Hold the bobbin so that the thread pulls counterclockwise. (2) Slip the bobbin over the latch and center stud. Push the latch down. (3) Draw the thread into the slot between the bobbin case opener and the triangular projection on the bobbin case. (4) Pull about 6 inches of the bobbin thread above the throat plate.

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Table 1110 (Cont)

MALFUNCTION	POSSIBLE CAUSES	ACTION
		(5) Close the slide plate but leave enough space between the slide and throat plate for the thread to slip through when it is caught by the needle thread.
	Bobbin is wound unevenly, too loosely, or is too full to revolve freely.	**Wind the bobbin.** (1) Push the bobbin on the bobbin spindle as far as it will go. (2) Pass the thread from the bobbin thread cone on the thread unwinder down through the thread hole in the tension bracket. (3) Pass the thread down between the bobbin winder tension disks. (4) Pull the thread from the lower side of the tension disks to the bobbin. (5) Pass the thread around the bottom side of the bobbin. Wind the end of the thread around the bobbin a few times. (6) Push the bobbin winder pulley forward against the machine belt by pressing on the stop latch thumb lever until the automatic stop latch catches and holds the pulley against the drivebelt. (7) Turn the motor switch on and lift the presser foot. (8) Depress the treadle to start the machine. Operate the machine until the bobbin is full. (9) Remove the bobbin from the bobbin winder spindle. (10) Turn off the motor switch.
Stitches skip or fail to lock.	**Needle is not installed correctly.**	**See the correct action for installing the needle listed for the malfunction "needle thread breaks."**
	Needle fails to catch bobbin thread because sewing book is out of adjustment.	**Time the needle bar.** (1) Remove faceplate screw. (2) Remove faceplate. (3) Loosen the needle bar pinch screw.
	Needle bar is out of adjustment.	(4) Move the needle bar up or down as necessary to bring the eye of the needle 1/16" below the point of the hook.

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Table 1110 (Cont)

MALFUNCTION	POSSIBLE CAUSES	ACTION
		(5) Tighten the needle bar pinch screw.
Stitch is too loose.	Thread tension is too loose.	See the correct action for thread tension listed for the malfunction "needle thread breaks."
Seams draw.	Thread tension is too tight.	See the corract action for thread tension listed for the malfunction "needle thread breaks."
	Operator is feeding material at an improper speed.	Operator must feed material in relation to machine speed.
Stitches are uneven or piled up.	Not enough pressure on presser foot.	Increase the pressure. See the correct action for presser foot is loose listed for the malfunction "needle breaks."
Lamp does not light when switch is in the ON position.	Light cord is not plugged into the electrical power receptacle.	Plug cord in.
	Light cord is broken.	Report this to your supervisor.
	Incandescent lamp (bulb) is burned out.	Replace the lamp.
	Lamp assembly or switch is defective.	Report this to your supervisor.
	Electrical power receptacle is defective.	Report this to your supervisor.
	Power cable is not plugged into electrical power receptacle.	Plug power cable in.
Motor does not start when switch is in the ON position.	Power cable is broken.	Report this to your supervisor.
	Switch is defective.	Report this to your supervisor.
Motor makes unusual noises.	Motor is defective.	Shut down the sewing machine and report it to your supervisor.
Motor does not pull the load.	Drivebelt is slipping.	Report this to your supervisor.
	Voltage is not correct or the motor is faulty.	Report this to your supervisor.

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REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1151

SEW A HEM IN A PAIR OF OG 107 FIELD TROUSERS WITH SEAM TYPE 1

CONDITIONS: You are working in a fabric repair shop. A pair of OG 107 trousers with a damaged hem has been submitted for repair by a supported unit. Your supervisor has instructed you to sew a hem in the trousers with a seam type 1. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: light-duty sewing machine prepared for operation, white or yellow chalk, shears, ruler, worktable, and one pair of OG 107 field trousers.

STANDARD: You must complete all performance measures in sequence, without error, within 20 minutes, for one hem. There must be no skipped stitches. All stitched rows must begin and end with a 1-inch tack.

PERFORMANCE MEASURES:

1

1. Prepare the trouser legs for sewing. (See A, fig 1151.)

a. Position the trousers on the worktable, face side up, with the trouser legs fully extended. (NOTE: If the trousers have a hem, you must remove the stitches from the hem to give a raw edge.)

b. Measure and mark one-half inch from the raw edge.

c. Measure and mark 1 inch from the one-half inch line. This is the hem line.

d. Make a fold on the one-half of an inch mark. (See B, fig 1151.)

e. Make a fold on the hem line. (See C, fig 1151.)

2. Sew a hem in the trouser legs with a seam type 1.

a. Sew a straight row of stitches one sixteenth of an inch from the folded edge completely around the trouser legs.

b. Finish the stitch row with a 1-inch tack.

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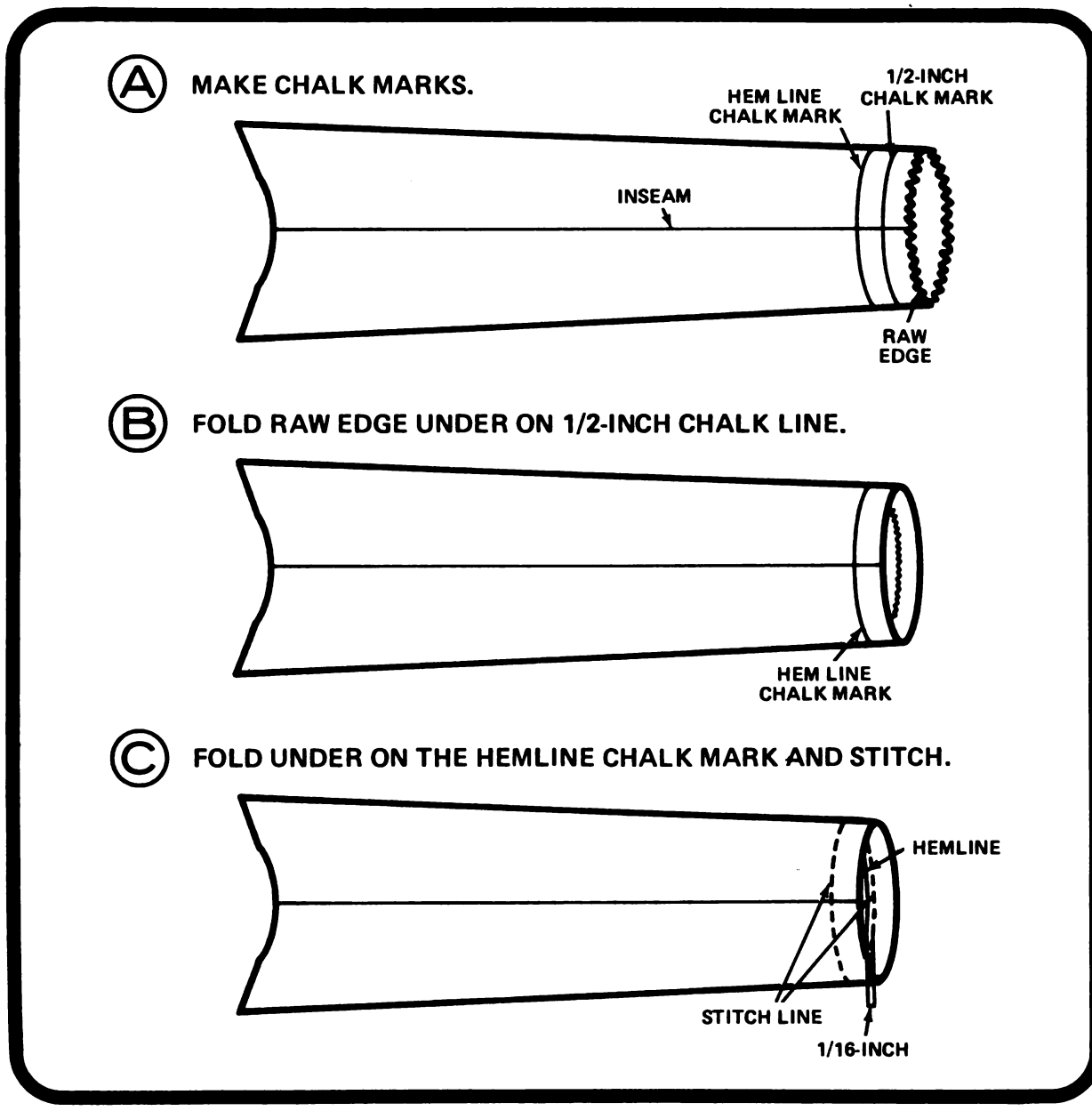

Figure 1151. Steps in hemming field trousers.

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1152

CONSTRUCT AND ATTACH A PRECUT PATCH-TYPE POCKET TO AN OG 108 SHIRT USING SEAM TYPE 2.

CONDITIONS: You are working in a fabric repair shop. A supported unit has submitted an OG 108 shirt requiring a pocket be replaced. Your supervisor has instructed you to attach the pocket with a seam type 2. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: fully operational light-duty sewing machine, shears, chalk, ruler, straight pins, and precut patch-type pocket for an OG 108 shirt.

STANDARD: You must complete all performance measures in sequence, without error, within 20 minutes, for one patch type pocket. The pocket must be straight with the seams sewn with no puckers. The fold of the seam must be even across the length of the pocket. No raw edges must be evident.

PERFORMANCE MEASURES:

1

1. Prepare the precut pocket material for sewing.

a. Place the pocket material face up on a work table. (See A, fig 1152.)

b. Using the ruler and chalk, measure and mark a chalkline one-half inch from the raw edge on both sides and the bottom of the pocket material.

c. Using the ruler and chalk, measure and mark in one inch on the top of the pocket material.

d. Fold the sides on the 1/2-inch marks. (See B, fig 1152.)

e. Fold the bottom on the 1/2-inch mark.

f. Fold the top on the 1-inch mark.

g. Using the handle of the shears, crease all folded edges to hold them in place or pin folds in place.

h. Sew the top fold in place one-sixteenth of an inch and tack no less than one inch at both ends.

2. Position and sew the patch pocket in place using seam type 2 with the light-duty sewing machine.

a. Position the new pocket over the area where the old pocket was located, and pin in place (face up) with the folds on the inside of the pocket. (See C, fig 1152.)

b. Using the ruler and chalk, measure in one-fourth of an inch from the folded edge, and mark both sides and the bottom of pocket face.

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c. Position the item being repaired so that the bottom of the pocket is facing the repairman.

d. Start the stitch row on the top of the right side of the pocket. Insert the needle one-sixteenth of an inch down from the top and one-sixteenth of an inch in from the side. (See D, fig 1152.)

e. Make a tack by stitching 1 inch down and back up to the starting point.

f. Stitch over to the 1/4-inch chalkline.

g. Continue the stitch row by stitching along the chalkline down the right side, across the bottom, and up the left side to one-sixteenth of an inch from the top.

h. Stitch from the 1/4-inch chalkline across the top of the pocket to one-sixteenth of an inch from the side.

i. Make a tack as stated in e above.

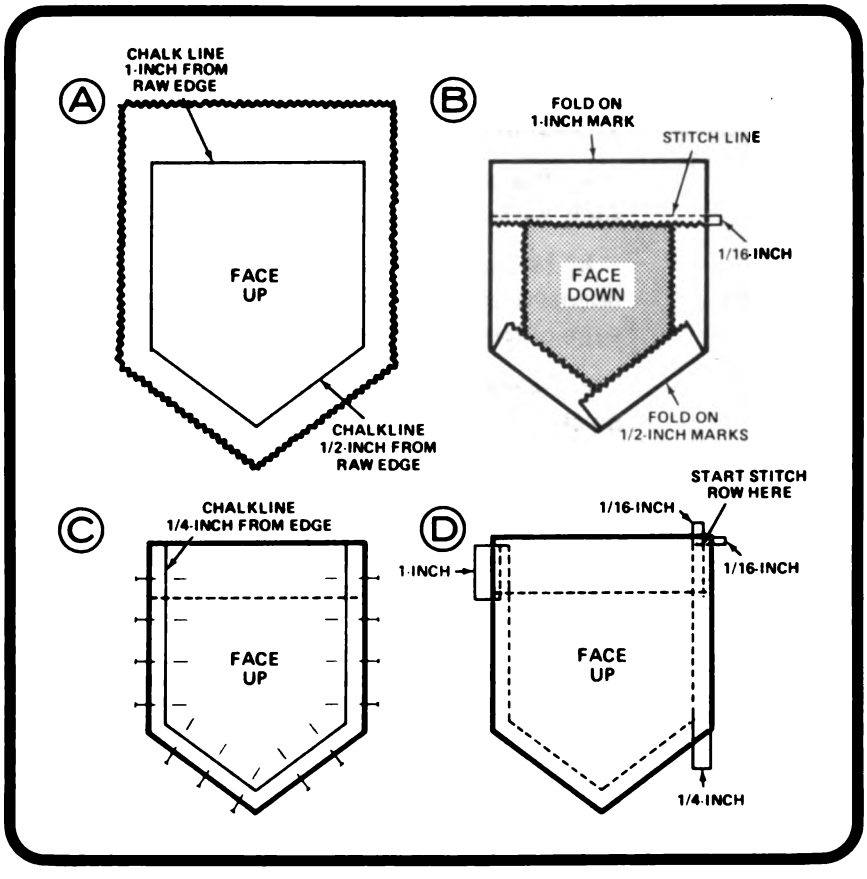

Figure 1152. Steps in attaching a pocket.

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1153

CONSTRUCT AND ATTACH COAT TOP POCKET FLAPS WITH SEAM TYPE 3.

CONDITIONS: You are working in the clothing repair shop. An OG 107 field jacket with a damaged top pocket flap has been submitted by a supported unit for repair. Your supervisor has instructed you to construct and attach the pocket flap to the field coat. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: light-duty sewing machine prepared for operation, shears, 12-inch ruler, straight pins, chalk, one OG-107 coat, and precut replacement material.

STANDARD: You must complete all performance measures, in sequence, within 15 minutes, for one top pocket flap. The stitches securing the flap to the field coat must be straight with no skipped stitches. All stitch rows must be tacked.

PERFORMANCE MEASURES:

1

1. Construct the pocket flap. (See A, fig 1153.)

a. Place the two precut pieces of material together, face to face, with edges even and pinned.

b. Measure in one-half inch from the raw edge, and mark a straight line with tailor's chalk around all edges except the top edge of the flap. (See A, fig 1153.)

c. Make certain both edges of the material (top and bottom pieces) are even at the marked edge.

2. Sew the measured, marked, and cut pieces of material together using seam type 2.

a. Make a 1-inch tack and sew the two pieces of material together with a simple seam following the chalkline. (See B, fig 1153.)

b. Finish the stitch row with a 1-inch tack.

c. Turn the joined pieces of material right side out.

d. Make a 1-inch tack and top stitch a row of stitches one-fourth of an inch from the edge of the material around the side and bottom. (See C, fig 1153.)

e. Measure in one-half inch from the raw edge of the top edge of the flap. Mark with chalk and then stitch along the chalkline. (See D and E, fig 1153.)

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f. Cut off the bottom layer one-half inch from the raw edge.

g. Position the pocket flap one-half inch above the pocket. Make a 1-inch tack, and sew one row of stitches one-fourth of an inch from the folded edge. Finish the stitch row with a 1-inch tack. (See F, fig 1153.)

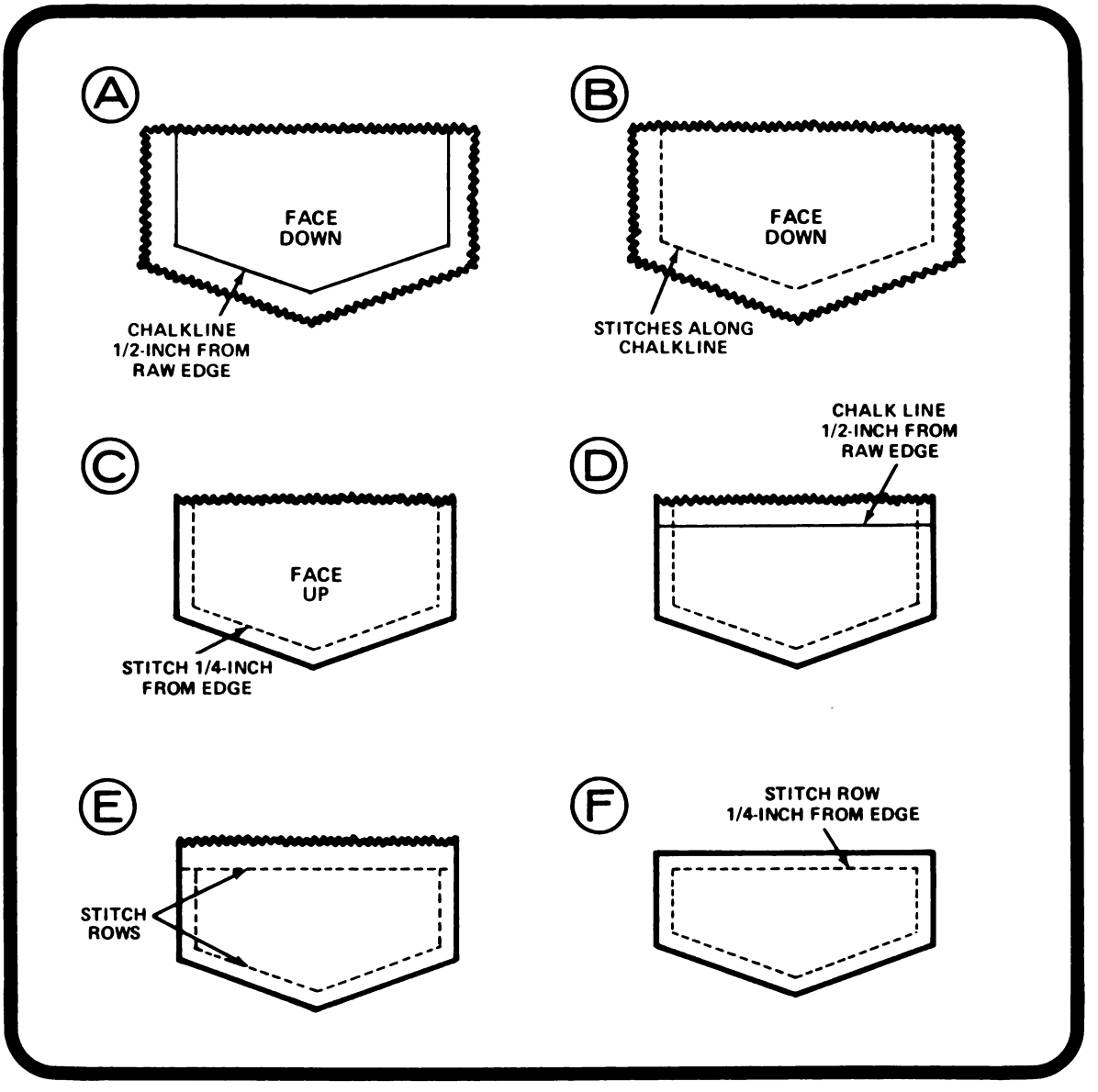

Figure 1153. Steps in constructing and attaching a pocket flap.

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1154

RESTITCH SEAM TYPE 4 TO REPAIR BACK PANELS OF A PARKA SHELL.

CONDITIONS: You are working in the clothing and CTA 50-900 equipment repair area of a fabric repair shop. A supported unit has submitted parka shells with damaged seams to be repaired. Your supervisor has instructed you to make the repairs. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: one fully operational light-duty sewing machine, shears, worktable, and one parka shell.

STANDARD: You must complete all performance measures in sequence, without error, within 20 minutes, for one parka shell. The seam must have a double thickness of material with no loose or skipped stitches. Stitch rows must be straight and secured with tacks.

PERFORMANCE MEASURES:

1

1. Prepare the parka shell for sewing by folding the top panel under one-fourth of an inch. (See A, fig 1154.)

2. Sew the two panels together with seam type 4.

a. On the face side of the top panel, beginning 1-inch above the open seam, sew a row of stitches one-sixteenth of an inch from the folded edge.(See A, fig 1154.)

b. Stitch 1 inch beyond the open seam. (Overlap the old stitch row.)

c. Turn the parka shell over so that the inside is now face up. (See B, fig 1154.)

d. On the inside of the parka shell, fold the raw edge of the bottom panel under the raw edge of the top panel to interlock the two panels.

e. Start 1 inch above the open seam and sew a straight row of stitches one-sixteenth of an inch from the folded edge of the bottom panel. Overlap the old stitch row 1 inch beyond the end of the open seam.

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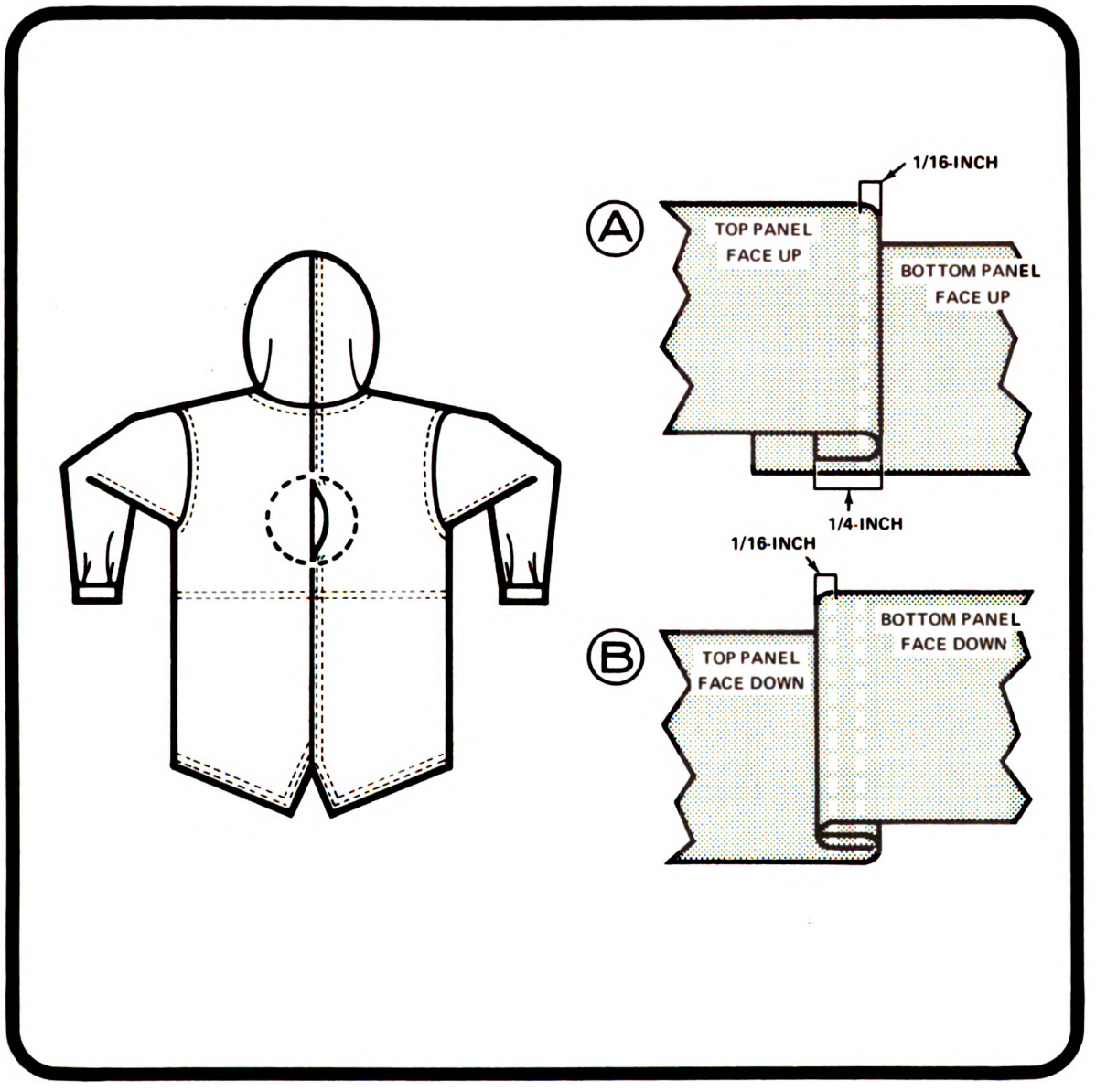

Figure 1154. Repair of an open seam in the back panel of a parka shell.

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1155

ATTACH A REPLACEMENT COLLAR TO A CTA 50-900 ITEM WITH SEAM TYPE 5.

CONDITIONS: You are working in a clothing repair shop. An OG 108 shirt with a damaged collar has been submitted for repair by a supported unit. Your supervisor has instructed you to make the repair using seam type 5. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: a fully assembled light-duty sewing machine, shears, chalk, 12-inch ruler, fabricated or cannibalized collar, 1 OG 108 shirt with damaged collar removed.

STANDARD: You must complete all of the performance measures in sequence, without error, within 60 minutes, to replace one collar. All edges must be evenly aligned between the collar and the back of the shirt.

PERFORMANCE MEASURES:

1. Position the prepared collar for sewing.

   a. Position the back of the shirt face up on the table.

1 b. Mark a chalkline one-half inch from the raw edge across the length of the neck of the shirt. (See fig 1155.1.)

   c. Position the bottom layer of the collar material on the 1/2-inch mark on the neck of the shirt. The collar and shirt neck must be face to face. (See fig 1155.2.)

2. Using a seam type 5, sew the collar and shirt together.

   a. Sew the bottom layer of the collar to the face side of the neck. At one end of the chalkline make a 1-inch tack, and stitch the other end of the chalkline and make another 1-inch tack. NOTE: The top layer of the collar must be sewn to the inside of the neck.

   b. Fold the bottom piece of the collar so that the sewn edges are inside the collar.

   c. Make a fold in the top piece of the collar 1 inch from the raw edge. The raw edge must be folded to the inside of the collar.

   d. Position the top piece of the collar on the shirt neck so the fold line overlaps the first seam by one-eighth inch.

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Figure 1155.1 Mark a chalkline one-half inch from the raw edge on the shirt neck.

Figure 1155.2 Sew the bottom layer of the collar to the shirt neck.

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e. Make a 1-inch tack by overlapping the 1/4-inch stitch row in the collar, and sew a row of stitches one-sixteenth of an inch from the folded edge. Finish the stitch row with a 1-inch tack by overlapping the 1/4-inch stitch row 1 inch. (See fig 1155.3.)

1

Figure 1155.3. Finish the collar.

REFERENCES:

The performance measures give you all the information you need to know to complete this task. No additional references are required.

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■ 101-513-1156

FINISH A REPLACEMENT COLLAR WITH SEAM TYPE 6.

CONDITIONS: You are working in the clothing and CTA 50-900 repair area of a fabric repair shop. A supported unit has submitted an OG 108 wool shirt with a damaged collar for repair. A coworker has constructed a replacement collar and your supervisor has instructed you to finish the collar with seam type 6. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: light-duty sewing machine prepared for operation; shears; chalk; ruler; precut collar material, iron, and worktable.

STANDARD: You must complete all performance measures in sequence, without error, within 20 minutes, for one collar. The seam must not have any skipped stitches or puckers. The folds of the seams must be even across the length of the material and have no raw edges protruding.

PERFORMANCE MEASURES:

1. Prepare the collar to be top stitched.

   a. Turn the collar inside out.

   b. Cut one-fourth inch off pointed ends of the collar. (See fig 1156.1.)

   c. Press the seams open on all sides of the collar.

   d. Turn the collar face-side out. Mark the top material one-fourth inch from all three stitched sides. (See fig 1156.2.)

2. Finish the collar. (See fig 1156.3.)

   a. Begin stitching one-half of an inch from the raw edge of the collar. Follow the 1/4-inch chalk mark to stitch the three sides. (See fig 1156.3.)

   b. Finish the seam type 6 with a 1-inch tack by overlapping the 1/4-inch stitch row at the beginning point.

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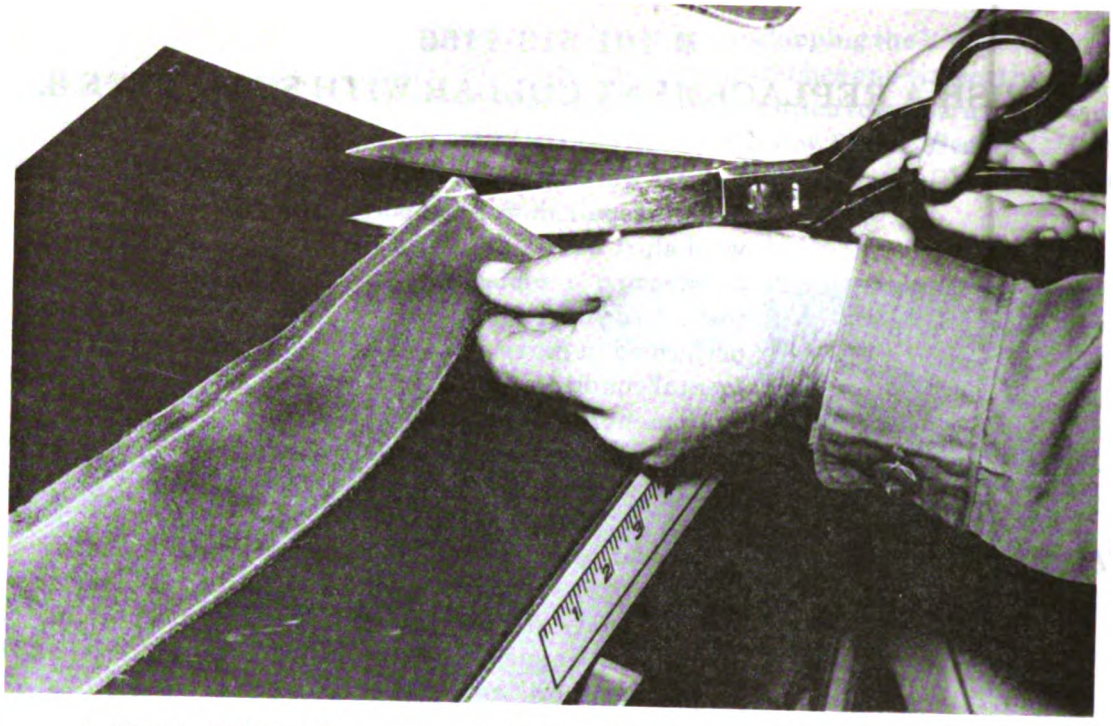

Figure 1156.1 Cut one-fourth inch off the pointed ends of the collar.

1

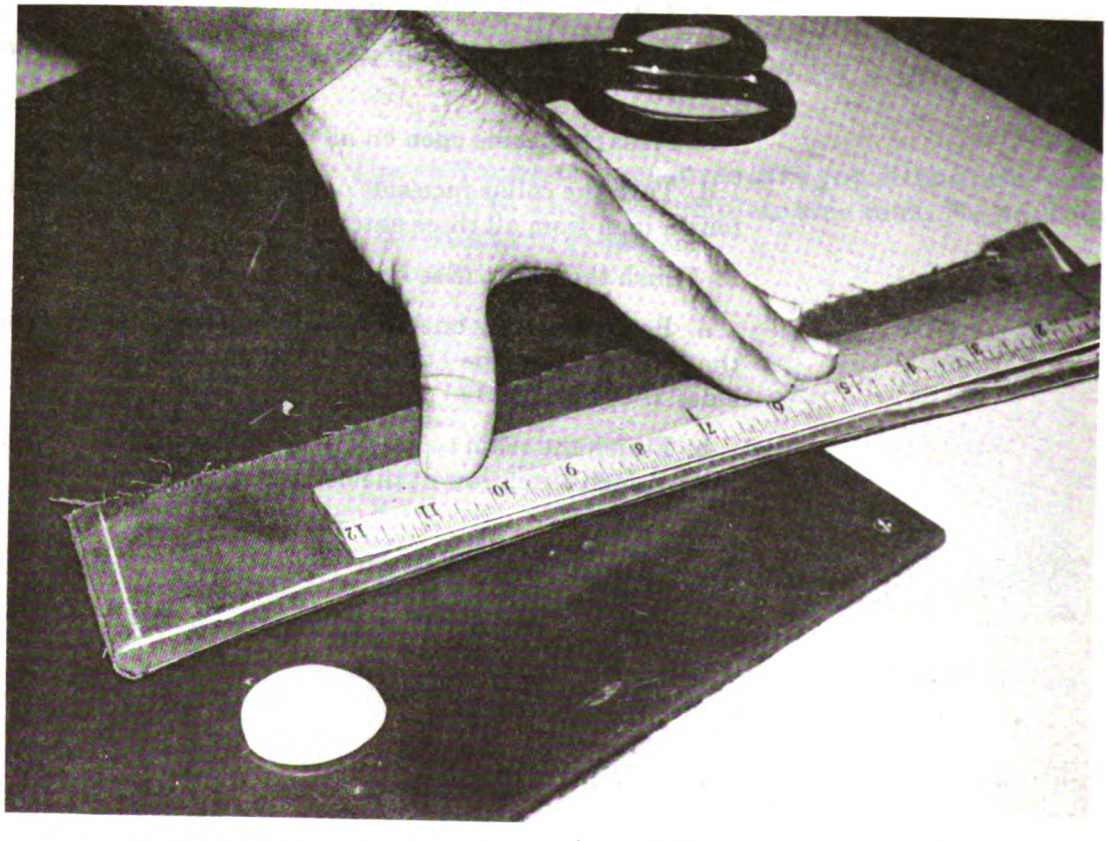

Figure 1156.2. Mark the collar one-fourth inch from the edges.

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Figure 1156.3 Finish the collar.

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1157

ZIGZAG DARN HOLES UP TO ONE-HALF INCH IN DIAMETER

CONDITIONS: You are working in a clothing repair shop. Sleeping bag covers with up to 1/2-inch diameter tears have been submitted for repair by a supported unit. Your supervisor has instructed you to make the repair with a zigzag darn. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: one each sleeping bag cover (damaged), ruler, light-duty sewing machine, chalk, and shears.

STANDARD: Within 10 minutes, you must correctly complete the performance measures in sequence to zigzag darn one hole on one sleeping bag cover. The darn must be even, smooth, and without puckers.

PERFORMANCE MEASURES:

1

1. Position and mark the sleeping bag cover for repair.

   a. Position the sleeping bag cover face up and in a horizontal position.

   b. With the ruler and chalk, measure one-fourth of an inch from each end of the tear and mark.

   c. Measure one-fourth of an inch around the tear and mark. (See A, fig 1157.)

2. Zigzag darn the tear.

   a. Start sewing on the 1/4-inch line at either end of the tear.

   b. Sew up and down across the tear keeping stitches one-sixteenth of an inch apart until you have stitched over the marked area. (See B, fig 1157.)

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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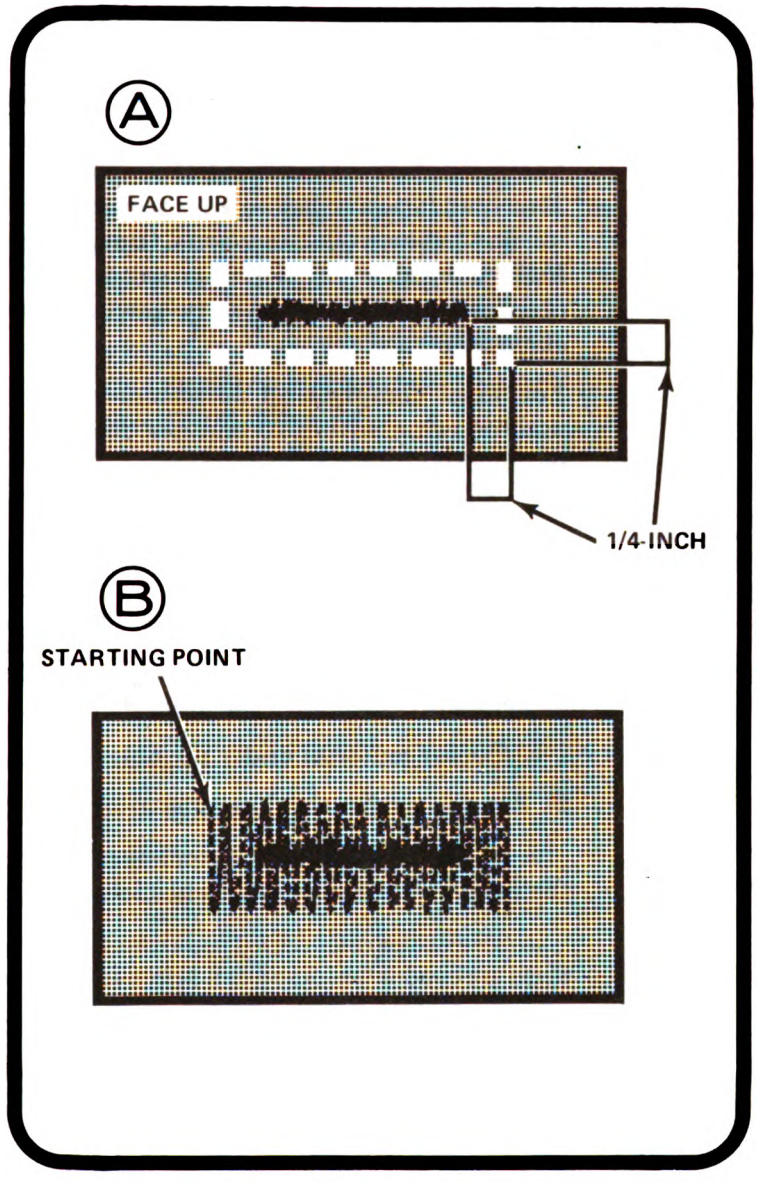

Figure 1157. Zigzag darn.

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■ 101-513-1158

REINFORCE DARN HOLES UP TO ONE INCH IN DIAMETER.

CONDITIONS: Sleeping bag covers with holes up to 1 inch in diameter have been submitted for repair by a supported unit. Your supervisor has instructed you to make the repair with a reinforce darn. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: one each sleeping bag cover (damaged), ruler, light-duty sewing machine, chalk, and shears.

STANDARD: You must complete all performance measures in sequence, without error, within 10 minutes, for one item. The darn must be smooth and without puckers.

PERFORMANCE MEASURES:

1. Prepare the material to reinforce a darn. (See A, fig 1158.)

   a. Cut a piece of material of the same color and texture.

   b. Measure and mark a chalkline that is one-fourth inch larger on all sides than the damaged area.

   c. Center material under the hole on the damaged item.

2. Reinforce darn the damaged area. (See B, fig 1158.)

   a. Make sure the reinforcement material is centered under the hole. Sew one row of stitches to secure item for darning.

   b. Begin sewing on the chalkline. Stitch up and down across the damaged area. Keep the stitches one-sixteenth of an inch apart until the area marked is stitched over.

   c. Cut off the excess material. (See C, fig 1158.)

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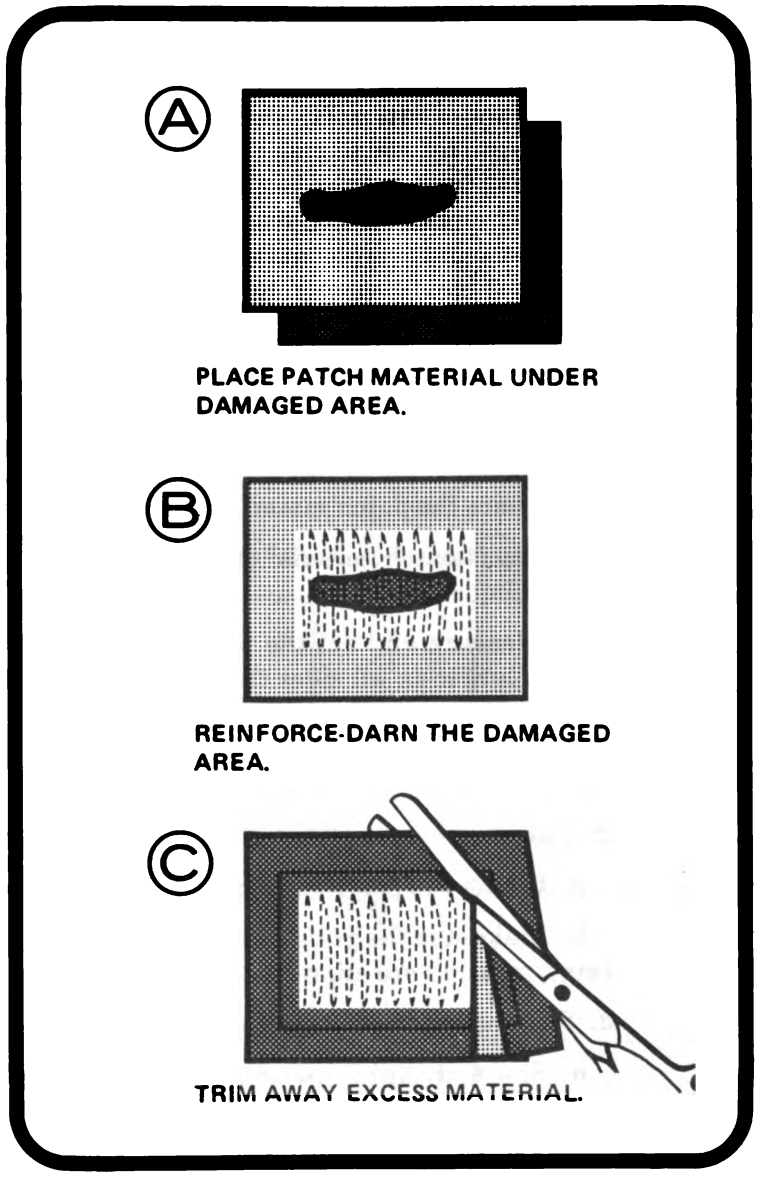

Figure 1158. Steps to reinforce darn a hole.

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REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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REPAIR 1- TO 2-INCH HOLES, TEARS, CUTS, OR EXTREMELY WORN AREAS ON CTA 50-900 ITEMS WITH A SIMPLE PATCH (TOP).

CONDITIONS: You are working in a fabric repair shop. A supported unit has submitted clothing or CTA 50-900 items with 1- to 2-inch holes, tears, cuts, or extremely worn areas for repair. Your supervisor has instructed you to make the repairs with a simple top patch. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: one sleeping bag cover with a 1- to 2-inch diameter hole, a fully operational light-duty sewing machine, chalk, and ruler.

STANDARD: You must complete all performance measures in sequence, without error, within 20 minutes, for each simple top patch. The patch must be free of puckers and ravelled or raw edges.

PERFORMANCE MEASURES:

1. Prepare the patch material.

   a. Select patch material of the same color and texture as the item being repaired.

   b. Measure and cut the patch material so that it is 2 1/2 inches larger on all sides than the damaged area. (See A, fig 1159.)

   c. Turn the edges of the patch under one-half inch on all sides.

2. Position the patch material. (See B, fig 1159.)

   a. Center the patch face up over the damage.

   b. Make sure the grain of the patch and the grain of the item being repaired are aligned.

3. Sew the patch over the damaged area.

   a. Sew a straight row of stitches one-sixteenth of an inch from and all around the edges of the patch.

   b. Secure this stitch row by back stitching or tacking one inch at the end of the stitch row.

4. Finish the patch.

   a. Turn the item being repaired over and cut out the damaged area so that it is square or rectangular. (See C, fig 1159.)

   b. Notch all four corners of the cut out square one-half of an inch. (See D, fig 1159.)

   c. Fold the raw edges of the square under one-half of an inch. (See E, fig 1159.)

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d. Press the 1/2-inch fold down.

e. Sew a row of stitches one-sixteenth of an inch from and all around the folded edges. (See F, fig 1159.)

f. Secure the stitch row with a 1-inch tack at the end of the stitch row.

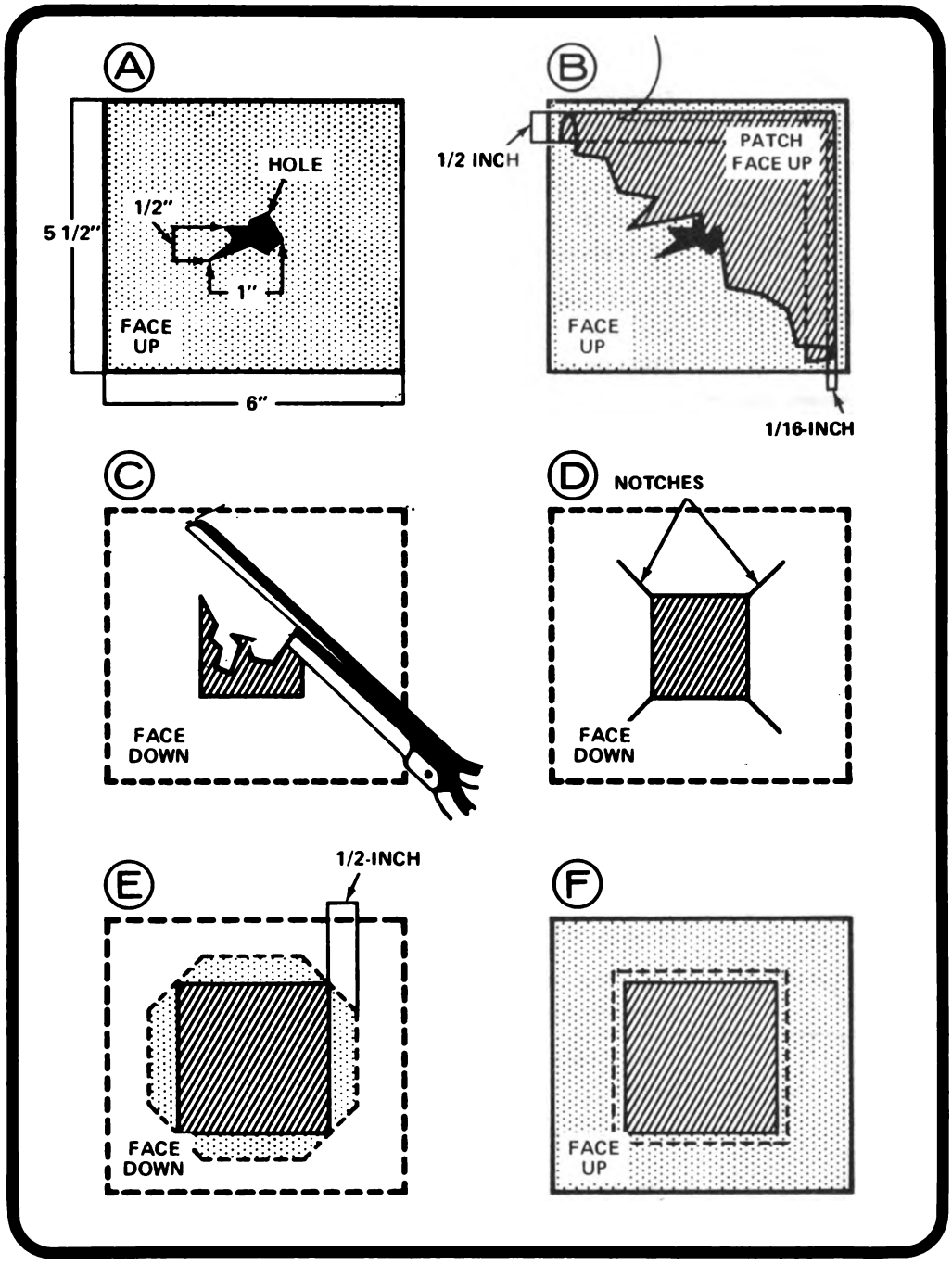

Figure 1159. Steps in making a simple top patch.

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1160

CONSTRUCT AND SEW T-PATCH TO REPAIR AN L-SHAPED TEAR ON CTA 50-900 ITEMS

CONDITIONS: You are working in the clothing repair shop. CTA 50-900 items with L-shape tears have been submitted for repair by a supported unit. Your supervisor has instructed you to repair the items. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: a fully prepared light-duty sewing machine, shears, chalk, 12-inch ruler, and a laundry bag with an L-shaped tear.

STANDARD: You must complete all performance measures in sequence, without error, within 30 minutes, for one patch. The repair area must be free of puckers, and the stitches must be sewn securely.

PERFORMANCE MEASURES:

1

1. Prepare the L-shaped tear for repair.

a. Cut the L-shaped tear so that it has a T-shape. (See A, fig 1160.)

b. Fold the material on the vertical tear face to face. (See B, fig 1160.)

c. With the ruler and chalk, measure and mark one-fourth of an inch from the damaged edges of the vertical tear. (See C, fig 1160.)

d. Measure and mark vertically an additional 1 inch beyond the ends of the vertical tear.

e. Fold the material on the horizontal tear face to face.

f. Measure and mark one-fourth inch from the damaged area along the horizontal tear. (See D, fig 1160.)

g. Measure and mark horizontally an additional 1 inch beyond the ends of the horizontal tear.

h. Draw a line horizontally from the end of each 1-inch mark to the 1/4-inch marks.

2. Sew the T-patch.

a. Fold the material on the vertical tear face to face. (See C, fig 1160.)

b. Tack and sew the entire length of the vertical mark. Finish the stitch row with a tack. (See E, fig 1160.)

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c. Press the seams open and cut back the bottom of the vertical tear.

d. Fold the material on the horizontal tear face to face. (See D, fig 1160.)

e. Tack and sew the entire length of the horizontal mark. Finish the stitch row with a tack. (See F, fig 1160.)

f. Position the item so the face side is down and press open the seams. (See G, fig 1160.)

g. Cut back one-fourth inch on the horizontal tear.

h. Position the item so the face side is up. Sew a row of stitches one-sixteenth of an inch from and around the seams. Finish the seam by overlapping the stitch row 1 inch to form a tack. (See H, fig 1160.)

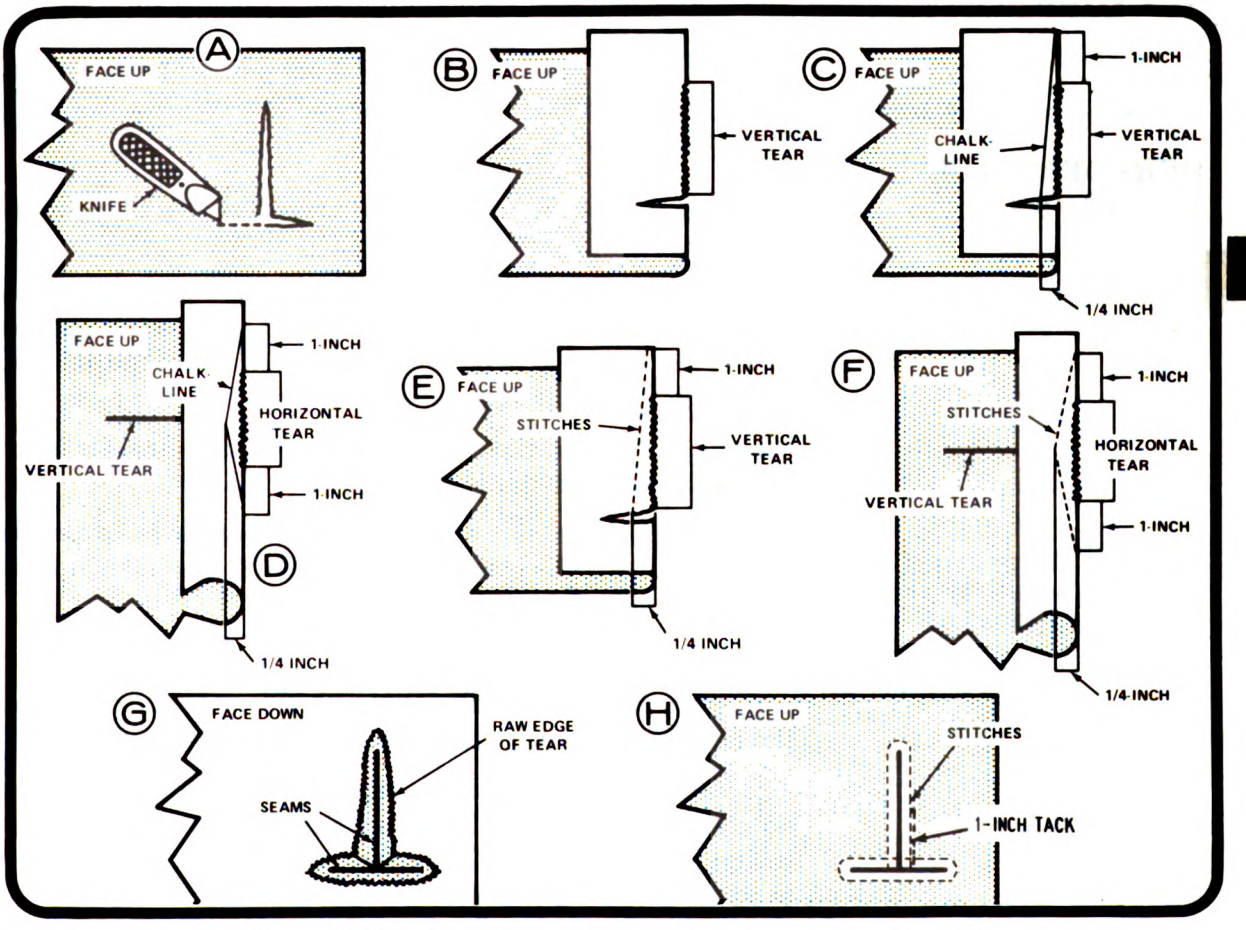

Figure 1160. Steps in constructing and sewing a T-patch.

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1161

SEW ORGANIZATIONAL SHOULDER INSIGNIA ON PERSONAL AND ORGANIZATIONAL CLOTHING ISSUE ITEMS.

CONDITIONS: You are working in a clothing repair shop. A supported unit has submitted personal and organizational clothing requiring organizational shoulder insignia on a DA Form 2407 (Maintenance Request). Your supervisor has instructed you to sew organizational shoulder insignia on personal and organizational clothing. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: a fully prepared light-duty sewing machine, 12-inch ruler, straight pins, chalk, and organizational insignia.

STANDARD: You must complete all performance measures in sequence, without error, within 15 minutes, to sew organizational insignia on one uniform. The patch must be centered with no runoff stitches going from the edges of the insignia.

PERFORMANCE MEASURES:

1

1. Measure, mark, and pin in place the organizational shoulder insignia (left sleeve).

a. Measure one-half inch down the sleeve from the shoulder seam and mark with chalkline. (See fig 1161.1.) If an epaulet covers the shoulder seam, measure the width of the epaulet. Use the center point of the epaulet as the shoulder seam.

b. Position the center of the organizational shoulder insignia on the 1/2-inch mark. (See fig 1161.2.)

c. Make certain the design of the insignia is in proper position and pin the insignia in place with pins at the top and bottom to make sure it stays in place.

2. Sew insignia to the sleeve.

a. Turn the sleeve inside out. Be careful not to pull out any of the pins. The pins must hold the insignia securely in place.

b. Start a stitch row at the upper point of the insignia by stitching in the center of the ridge. Sew completely around the insignia and finish the stitch row by overlapping the stitch row at the upper point, or make a 1-inch tack.

c. Turn the sleeve right side out. Remove all pins and cut and remove loose threads.

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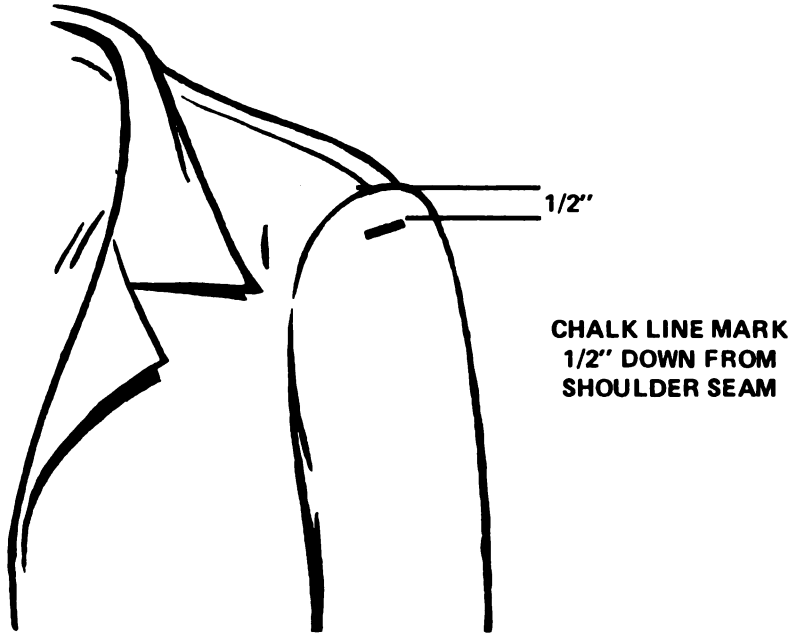

Figure 1161.1 Mark a chalkline one-half inch down from the shoulder seam.

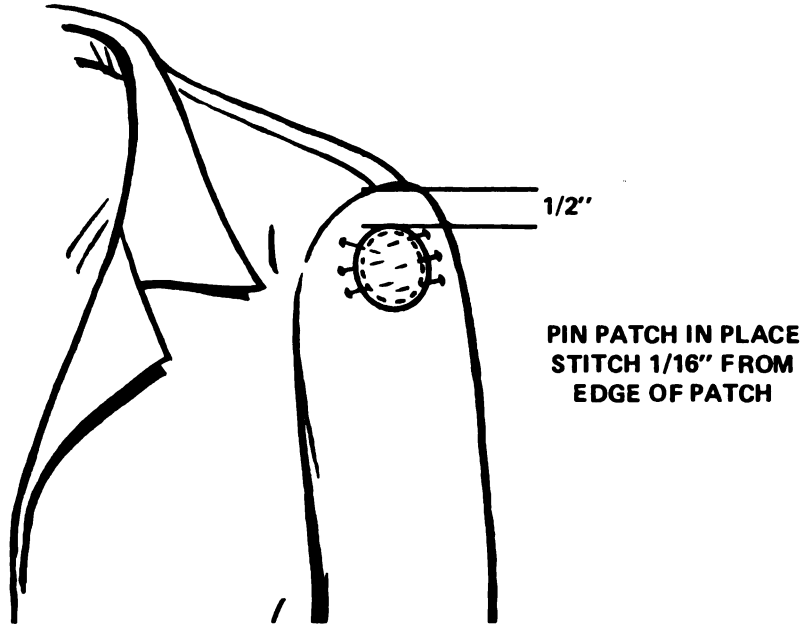

Figure 1161.2 Pin the patch in place and stitch.

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1162

REPLACE A SLIDE FASTENER IN A PAIR OF OG 107 OR OG 108 TROUSERS.

CONDITIONS: You are working in a fabric repair shop. A supported unit has submitted OG 107 and OG 108 trousers with damaged slide fasteners for repair. Your supervisor has told you to replace a damaged slide fastener in OG 107 or 108 trousers. The task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: one fully operational light-duty sewing machine, one replacement slide fastener, one pair of OG 107 or OG 108 trousers with a damaged slide fastener, ruler, chalk, and shears or knife.

STANDARD: You must complete all performance measures in sequence, without error, within 30 minutes, to replace one slide fastener in one pair of OG 107 or OG 108 trousers. The slide fastener must be set straight in the fly and tacked securely.

PERFORMANCE MEASURES:

1

1. Remove the damaged slide fastener from the trousers.

a. Draw a line on both sides of the trousers along the edge of the old slide fastener. This line will show you where to position the new slide fastener.

b. Remove stitches that join the seam and are holding the damaged slide fastener in place. Remove the stitch row at the waistband working down towards the bottom of the fly facing.

c. Cut the stitches where the slide fastener is tucked under the waistband just enough to allow the old slide fastener to be removed.

d. Cut and remove tack stitches from the bottom of the fly.

e. Cut and remove stitches holding the fly facing to the trousers.

f. Clean away all old or cut stitches from the fly area.

2. Prepare and stitch the left front of the trousers to be repaired.

a. Position and pin the slide fastener in place by following the line you marked between the facing and the seam you cut out on the left front of the trousers. (See fig 1152.1.)

b. Measure and mark 1 inch below the waistband for a tack.

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c. Make a tack on the 1-inch tack marks. Sew a row of stitches one-sixteenth of an inch from the top of the slide just below the waistband down to the bottom of the slide fastener. Make a 1-inch tack. (See fig 1162.2.)

d. Place the top portion of the slide fastener under the waistband.

e. Restitch the vertical seam up to the top of the waistband. Restitch the horizontal seam along the bottom of the waistband.

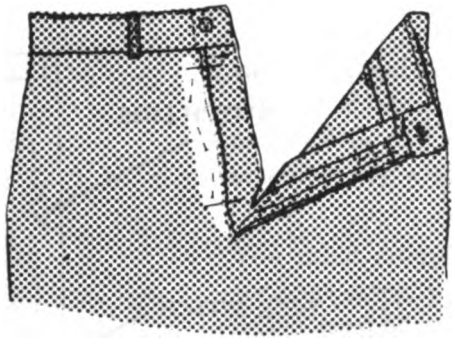

Figure 1162.1 Pin the slide fastener in place.

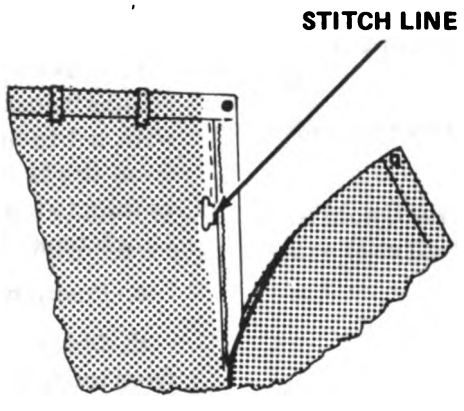

Figure 1162.2 Stitch the left side.

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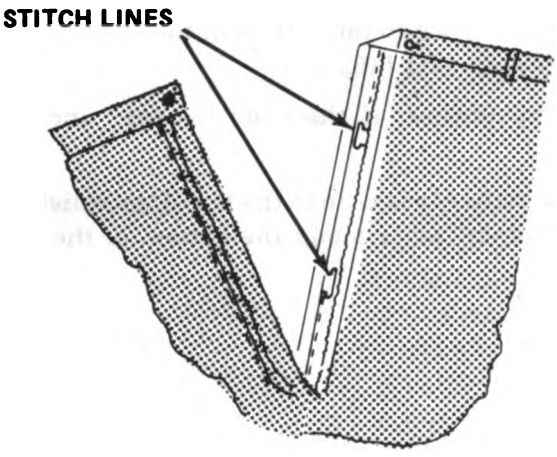

Figure 1162.3 Stitch the right side.

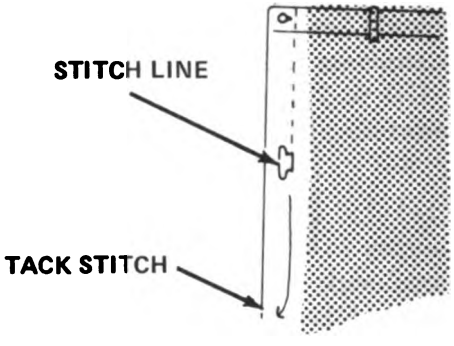

Figure 1162.4 Stitch the top of the right side.

1

3. Position and pin the remaining half of the slide fastener (right front).

a. Lay the slide fastener facing out flat along the guide line you drew.

b. Make a 1-inch tack and sew one-eighth of an inch from the scoops from top to bottom on the slide fastener. Finish this row with a 1-inch tack. Position the needle one-fourth of an inch from the last stitch row. Make a 1-inch tack, and sew from bottom to top of the slide fastener. Finish the stitch row with a 1-inch tack. (See fig 1162.3.)

c. Position the trousers face up on the machine tabletop.

d. Make a 1-inch tack and sew on the top side of the trousers from top to bottom to the fly. Finish the stitch row with a 1-inch tack. (See fig 1162.4.)

e. Bar tack at the bottom of the fly to secure the slide fastener in place.

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1163

REPAIR SMALL HOLES, TEARS, AND RIPS IN SLEEPING BAGS WITH A MACHINE-SEWN PINCH PATCH.

CONDITIONS: You are working in a fabric repair shop. A supported unit has submitted for repair several sleeping bags with small holes, tears, or rips in them. Your supervisor has instructed you to make the repairs with a machine-sewn pinch patch. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: one fully operational light-duty sewing machine, shears, chalk, ruler, patch material of the same color and texture as the item being repaired, and one sleeping bag with a small hole, tear or rip.

STANDARD: You must complete all performance measures in sequence, without error, within 40 minutes, for one sleeping bag. The patch must be centered over the damaged area. The patch must only be sewn through the top layer of the sleeping bag. The stitch rows must be straight and without puckers.

PERFORMANCE MEASURES:

1

1. Prepare the patch material.

   a. Select the patch material of the same color and texture as the item to be repaired.

   b. Measure and mark two and one-half inches from all sides of the damaged area on the sleeping bag. (See fig 1163.1.)

   c. Measure, mark, and cut patch material 2 1/2-inches larger than the damaged area of the sleeping bag.

   d. Measure and mark one-half inch in from the raw edges of the patch material. (See fig 1163.2.)

   e. Fold the raw edge under on the one-half inch lines. Crease the folded edge with the handle of the shears. (See fig 1163.3.)

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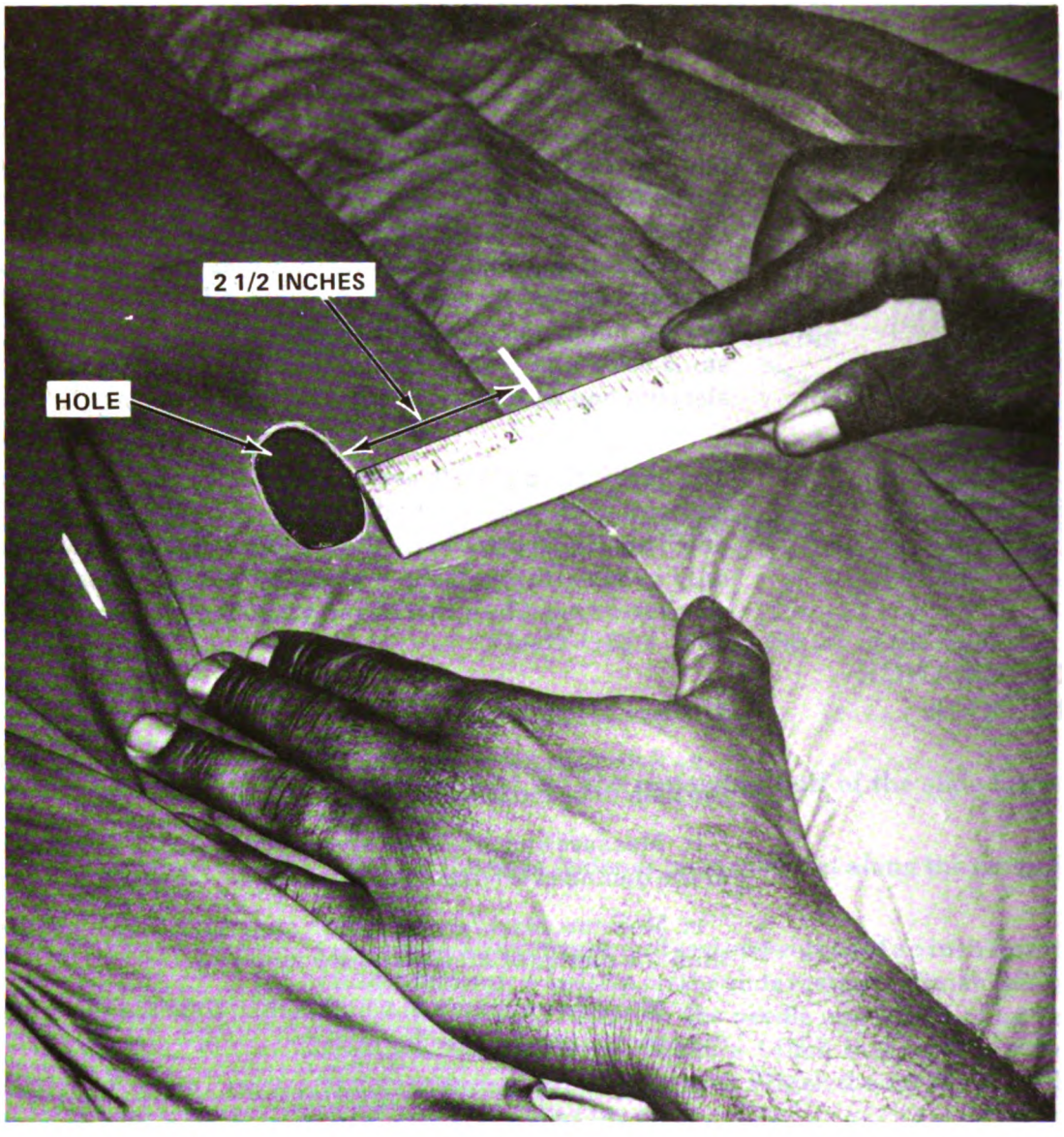

Figure 1163.1. Measure and mark 2 1/2 inches from all sides of the damaged area.

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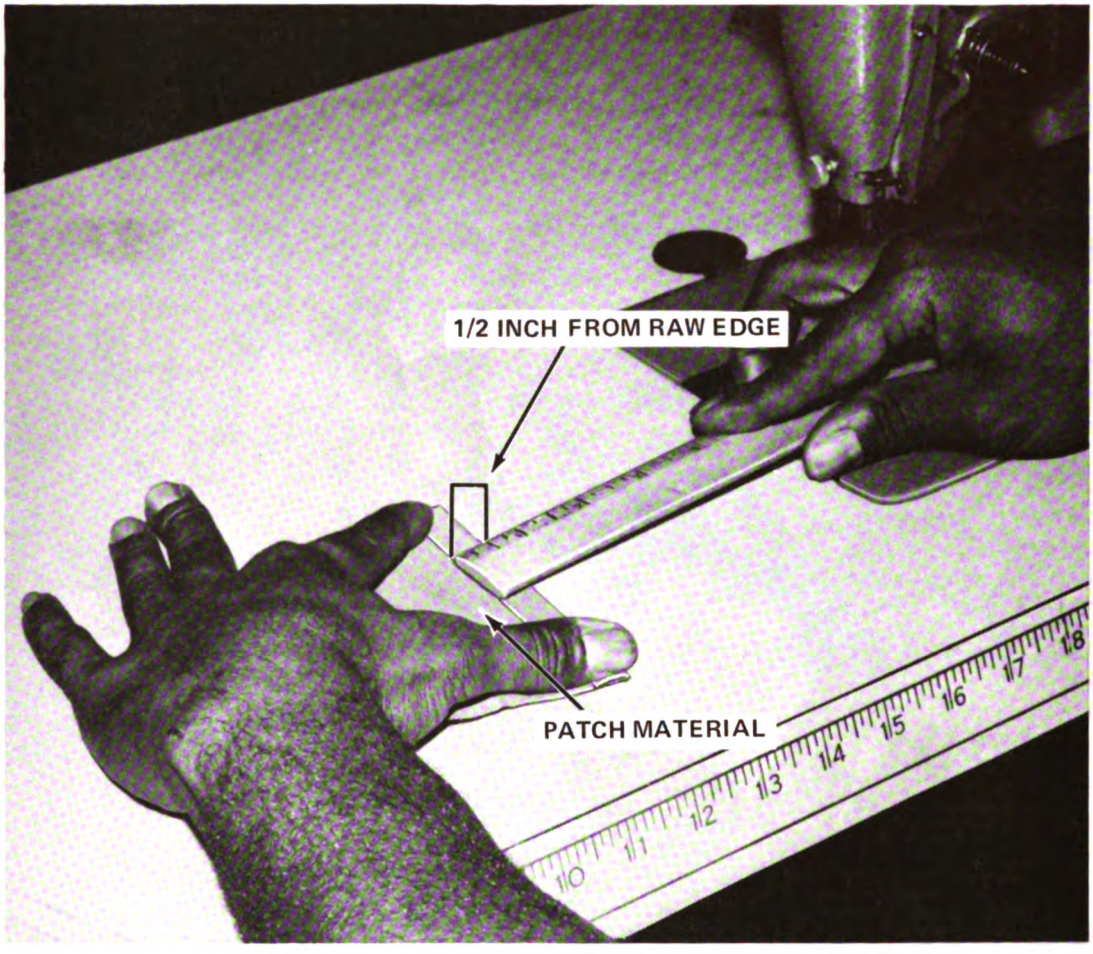

Figure 1163.2. Mark one-half inch from the raw edges of the patch.

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Figure 1163.3 Crease the folds.

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Figure 1163.4 Position the patch.

2. Position and sew the patch in place.

a. Pinch the fold and the sleeping bag material together so that the folded patch and the sleeping bag material are flush with each other. (See fig 1163.4.) (You should not pick up any insulation when pinching.)

b. Insert the material under the presser foot so that the inner material (insulation) of the sleeping bag will not be sewn.

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Figure 1163.5. Sew the patch to the sleeping bag.

c. Lower the presser foot of the machine and insert the needle at the upper right corner of the patch. (See fig 1163.5.)

d. Stitch one-sixteenth of an inch from the right edge of the patch material. Stitch all four sides of the patch in place.

e. Secure the stitch row with a 1-inch tack.

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1164

REPLACE A DAMAGED SLIDE FASTENER IN A SLEEPING BAG.

CONDITIONS: A sleeping bag with a damaged slide fastener has been submitted for repair by a supported unit. Your supervisor has instructed you to replace the damaged slide fastener. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: one sleeping bag with damaged slide fastener; light-duty sewing machine; needle-nose pliers; chalk; shears or knife; and slide fastener.

STANDARD: Within 60 minutes you must correctly complete all performance measures in sequence to replace one damaged slide fastener in a sleeping bag. The slide must move freely.

PERFORMANCE MEASURES:

1. Remove the slide fastener (left side).

   a. Position the sleeping bag with the slide fastener facing up. The 2-inch top guard webbing is to your left with the foot end away from you. (See fig 1164.1.)

   b. With the sleeping bag unzipped, remove the stitches on the left side from the folded edge to one-half inch past the top guard webbing. 1

   c. Under the top guard webbing, from the head end to the folded edge of the tape, carefully remove the first stitch row nearest to the eyelets. (See fig 1164.2.)

   d. Carefully cut off the slide fastener tape along the second stitching which fastens the guard webbing in place.

2. Remove the slide fastener (right side).

   a. Position sleeping bag with the slide fastener facing up.

   b. With the sleeping bag unzipped, remove the stitches on the right side from the folded edge to one-half inch past the top guard webbing. (See fig 1164.1.)

   c. Under the guard webbing, from the head end to the folded edge of tape, carefully remove the first stitch row nearest to eyelets. (See fig 1164.2.)

   d. Carefully cut off the slide fastener tape along the second stitching which fastens the guard webbing in place.

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Figure 1164.1 Remove the stitches across the top guard webbing.

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Figure 1164.2 Remove the stitch row nearest the eyelets.

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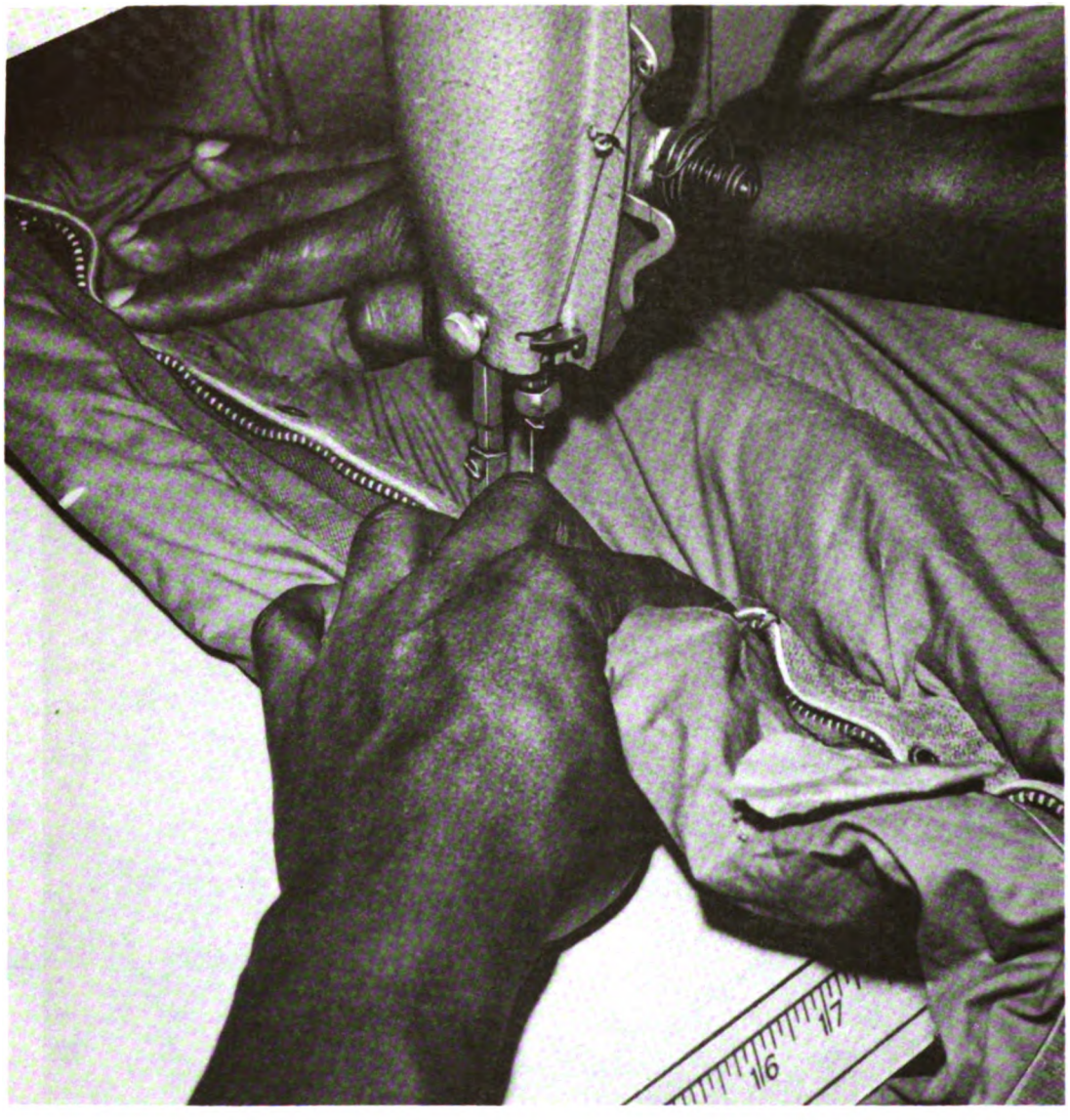

Figure 1164.3 Stitch the slide fastener in place.

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3. Install the slide fastener (left side).

a. Position the edge of the slide fastener tape between the 1 1/4-inch top guard webbing and the 2 1/2-inch weatherstrip tape.

b. Place the slide fastener tape parallel to the stitching which fastens the guard webbing in place.

c. Attach the slide fastener tape to the weatherstrip tape with a row of stitching one-eighth of an inch from the edge along the full length of the opening. (See fig 1164.3.)

d. Sew an additional row of stitching through the guard webbing and the fastener tape approximately one-half inch from the edge of the guard webbing furthest from the eyelets. The weatherstrip should not be caught in the stitching. (See fig 1164.3.)

4. Install the slide fastener (right side).

a. Position the edge of the slide fastener tape between the 1 1/4-inch top and bottom guard webbings.

b. Place the slide fastener tape parallel to the stitching which fastens the guard webbing in place.

c. Attach the slide fastener tape to the bottom guard webbing with a row of stitching one-eighth inch from the edge along the full length of the opening.

d. Sew an additional row of stitching through both guard webbings and the fastener tape, approximately one-half inch from the edge of the guard webbing furthest from the eyelets.

e. Sew the fastener tape to the guard webbing one to one and one-fourth inch beyond the foot end of the metal chain. Sew two double rows of stitching one-fourth inch apart and parallel across the webbing.

REFERENCES:

The performance measures give you all the information you need to know to complete this task. No additional references are required.

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Section II

FABRIC REPAIR SPECIALIST, CANVAS AND WEB REPAIR (43M1B)

TASK NUMBER	TITLE	PAGE
	HAND AND MACHINE REPAIR OF CANVAS AND WEB ITEMS	
101-513-1201	Prepare and operate the textile sewing machine.	3-102
101-513-1202	Troubleshoot the textile sewing machine.	3-112
101-513-1203	Prepare and operate the heavy-duty sewing machine (Model 7-33).	3-120
101-513-1204	Troubleshoot the heavy-duty sewing machine.	3-133
101-513-1205	Attach a handworked grommet to a GP medium tent or tarpaulin.	3-140
101-513-1206	Replace missing or defective grommets on canvas items with punch and die set.	3-144
101-513-1208	Construct and sew simple top patches.	3-148
101-513-1209	Construct and sew watershed patches to repair holes, tears, and cuts in canvas items.	3-151
101-513-1210	Construct an overseam patch and apply it over a hole or a tear in the seam of a canvas item.	3-155
101-513-1211	Construct and sew a reinforced grommet patch to repair a torn out grommet patch on a canvas item.	3-159
101-513-1212	Construct and sew an eave grommet patch.	3-162
101-513-1213	Construct and sew a seam-to-seam patch.	3-166
101-513-1214	Sew support strap patches with a heavy-duty sewing machine.	3-170
101-513-1215	Construct and sew chapes on canvas or web items.	3-172
101-513-1216	Fabricate replacement seat covers for tactical vehicles.	3-174
101-513-1217	Replace damaged corner slide fasteners on GP medium or GP large tents.	3-187

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■ 101-513-1201

PREPARE AND OPERATE THE TEXTILE SEWING MACHINE.

CONDITIONS: You are working in a preparation and operation area of a canvas repair shop. A textile sewing machine is to be used to repair items submitted on DA Form 2407 (Maintenance Request) by a supported unit. Your supervisor has instructed you to prepare and operate the machine before making repairs on the items submitted. The task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: one fully assembled textile machine, preventive maintenance checklist, lubrication order, screwdriver set, wrench set (open end), pliers, machine oil, sash brush, cleaning rags, DA Form 2404 (Equipment Inspection and Maintenance Worksheet), thread and needle.

STANDARD: You must complete all performance measures within 40 minutes, in sequence, without error, to prepare and operate each textile sewing machine.

1 **PERFORMANCE MEASURES:**

1. Perform before-operation maintenance using the preventive maintenance daily checklist. (See fig 1201.1.)

a. Check the table assembly for

(1) cut, cracked, broken, warped, and dirty tabletop or for loose mounting to the folding stand. Make certain the table assembly is level.

(2) bent or broken components.

(3) loose or missing bolts and nuts and for loose mounting to the table assembly.

b. Check the lamp assembly for

(1) loose or missing bolts, nuts, and screws, or loose mounting.

(2) dirty, cracked, or broken housing and lens.

(3) frayed insulation or broken wiring on the electrical cord. Inspect lamp switch to make sure it is not broken and to make sure it works right.

c. Check the drivebelt for breaks and excessive wear and to make sure it is not frayed.

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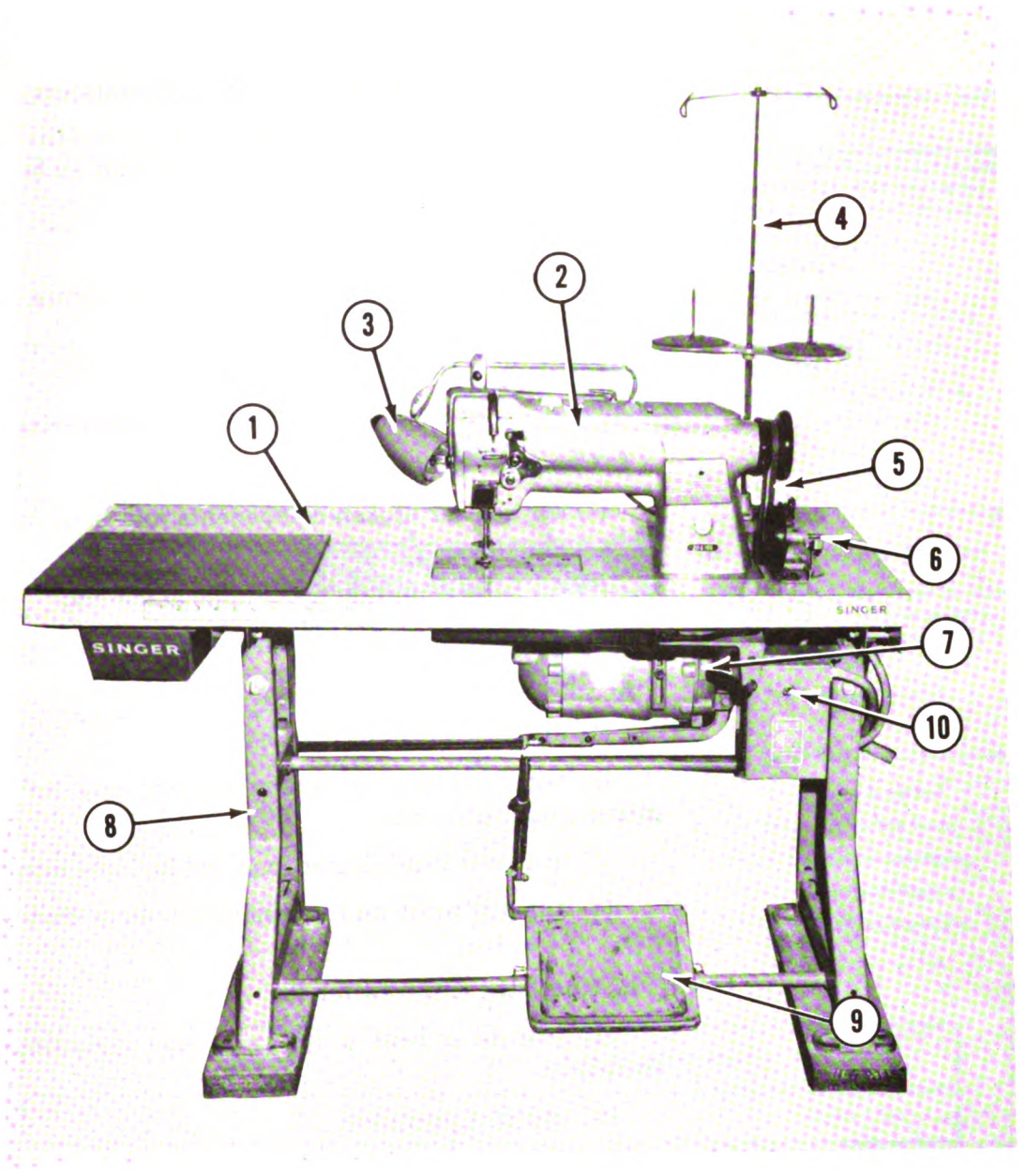

1	Table assembly	6	Bobbin winder
2	Machine head	7	Electric motor
3	Lamp assembly	8	Machine table stand
4	Thread unwinder	9	Starting treadle
5	Drivebelt and pulley	10	Motor switch

Figure 1201.1. Components of the textile sewing machine.

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d. Check the pulley for

(1) loose belt mounting.

(2) cracked, chipped, or broken edges, and loose mounting.

(3) a 1/4-inch distance between the sides of the belt when both sides of the belt are pressed inward midway between the pulleys.

e. Check the bobbin winder for

(1) bent, broken, loose, or missing components, and loose mounting.

(2) excessively worn leather brake.

(3) incorrect tension of the thread tension spring.

f. Check the folding stand

(1) for bent or broken components and loose or missing bolts and nuts.

(2) for loose mounting to the table assembly.

(3) to make sure it is level on the floor.

g. Check the electric motor for

(1) dirty surfaces and grease deposits.

(2) bent, cracked, or broken housing and for loose or missing bolts and nuts.

(3) loose electrical connections and for loose mounting.

(4) unusual noise and excessive vibration during operation.

h. Check the motor switch for

(1) broken or bent parts and loose mounting in the switchbox.

(2) improper operation.

i. Inspect the starting treadle

(1) for bent, broken, or loose components, and loose mounting.

(2) to see that the pulley brake lever engages the motor drive pulley with the drive motor when the treadle is depressed.

(3) pulley brake lever to see that it disengages the drive pulley from the motor and stops the pulley when the treadle is released during operation.

2. Lubricate the textile sewing machine using LO 10-3530-202-10-7. (See fig 1201.2.)

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LUBRICATION ORDER LO10-3530-202-10-7

20 March 1965

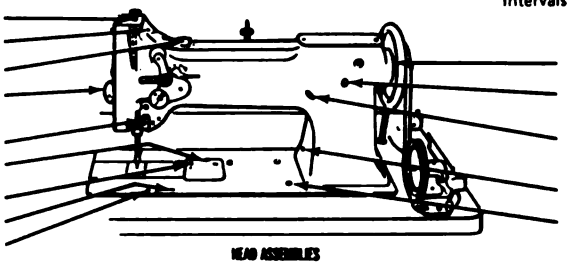
MACHINE, SEWING (SINGER MODEL 111W155)

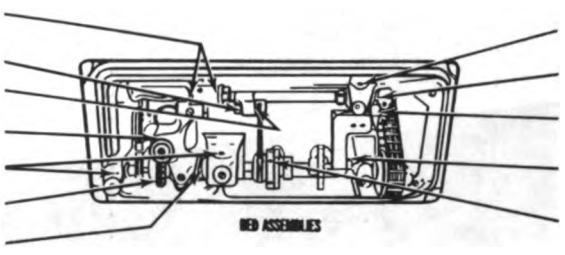
Reference: C9100-SL

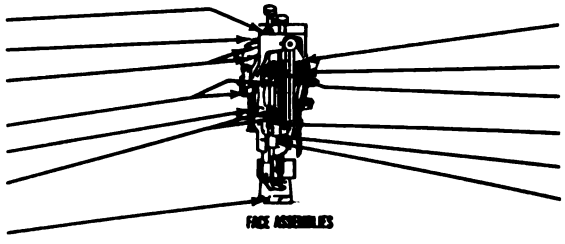
Reduce intervals under severe operating conditions.

Clean parts before lubricating sewing machine.
Wash parts with SOLVENT, drycleaning.
Intervals for all points – Every 4 hours.

Lubricant for all points– LO


Needle Bar Rock Frame
Arm Shaft
Arm Shaft Bushing
Thread Lubricator (See note 2.)
Thread Lubricator Oil Pad
Feed Driving Connection Oil Felt
Hook Driving Shaft Bushing
Feed Driving Rock Shaft
Feed Driving Rock Shaft Bushing
Arm Shaft
Needle Bar Rock Frame Rock Shaft Crank Connection
Needle Frame Rock Shaft Bushing
Hook Driving Shaft Bushing
Feed Driving Rock Shaft Bushing


Feed Driving Rock Shaft Bushing
Feed Driving Crank
Feed Driving Connection
Hook Driving Pinion
Hook Driving Shaft Bushings
Hook Driving Gear
Hook Saddle Bearing
Feed Driving Rock Shaft Bushing
Feed Driving Rock Shaft Crank
Needle Bar Rock Frame Rock Shaft Crank Connection Hinge Screw
Arm Shaft Connection Belt Timing Collar
Feed Driving Connection


Presser Bar Bushing
Lifting Eccentric Connection
Lifting Presser Bar Rock Shaft Bushings
Lifting Bellcrank Link
Lifting Bellcrank Hinge
Vibrating Presser Bar Connecting Link
Bobbin Case (See note 1.)
Needle Bar Connecting Link Stud
Takeup Lever Drive Stud
Presser Bar Position Guide
Tension Release Slide Spring
Presser Bar Lower Bushing
Needle Bar Rock Frame Slide Block

–KEY–

LUBRICANTS	EXPECTED TEMPERATURES			INTERVALS
	above + 32° F.	+ 40° F. to – 10° F.	0° F. to – 65° F.	
LO–OIL, lubricating, general purpose	LO Below 32° F. it is recommended that sewing machine be operated in a heated tent or building			4–Every 4 hours

NOTES:

Twice daily lubricate those moving parts indicated above by arrows with 1 to 3 drops of general purpose lubricating oil (LO).

1. **BOBBINS**–Every time a bobbin is installed, add 1 drop of oil to the oiling felts on the side of each bobbin case.

2. **THREAD LUBRICATOR**–Each time lubricator is used, fill reservoir with LO.

A copy of this lubrication order will remain with the equipment at all times; instructions contained herein are mandatory.

By Order of the Secretary of the Army:

EARLE G. WHEELER
General, United States Army
Chief of Staff

OFFICIAL:

J. C. LAMBERT
Major General, United States Army
The Adjutant General

MEC 3530-203-10/52

Figure 1201.2. Lubrication order.

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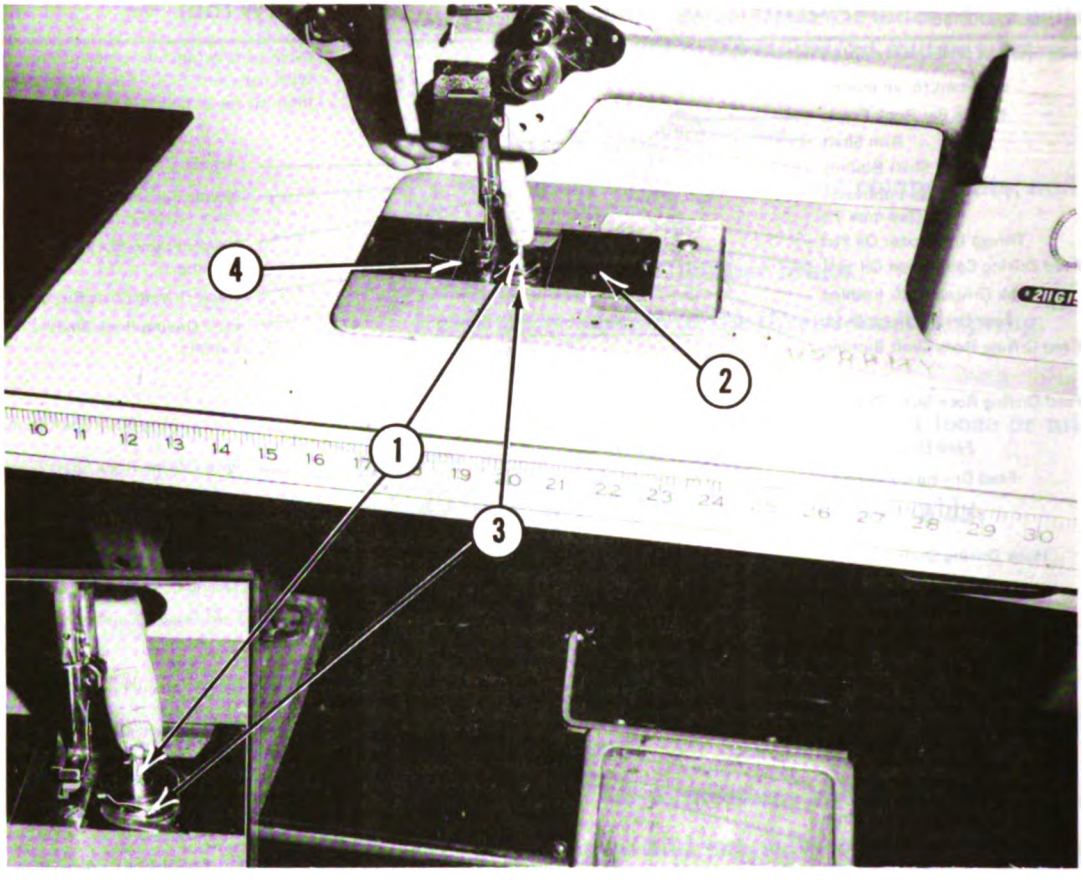

1

1 Center Stud
2 Slide Plate
3 Triangular Projection
4 Throat Plate

Figure 1201.3. Components used in removing and installing the bobbin.

PERFORMANCE MEASURES (CON.)

3. Prepare the textile sewing machine for sewing.

a. Select the correct needle and thread.

(1) Use a size 20 to 22 needle.

(2) Use thread of the same color and texture as item to be sewed.

b. Remove and install the needle.

(1) Turn the balance wheel toward you until the needle is at its highest point.

(2) Loosen the needle setscrew.

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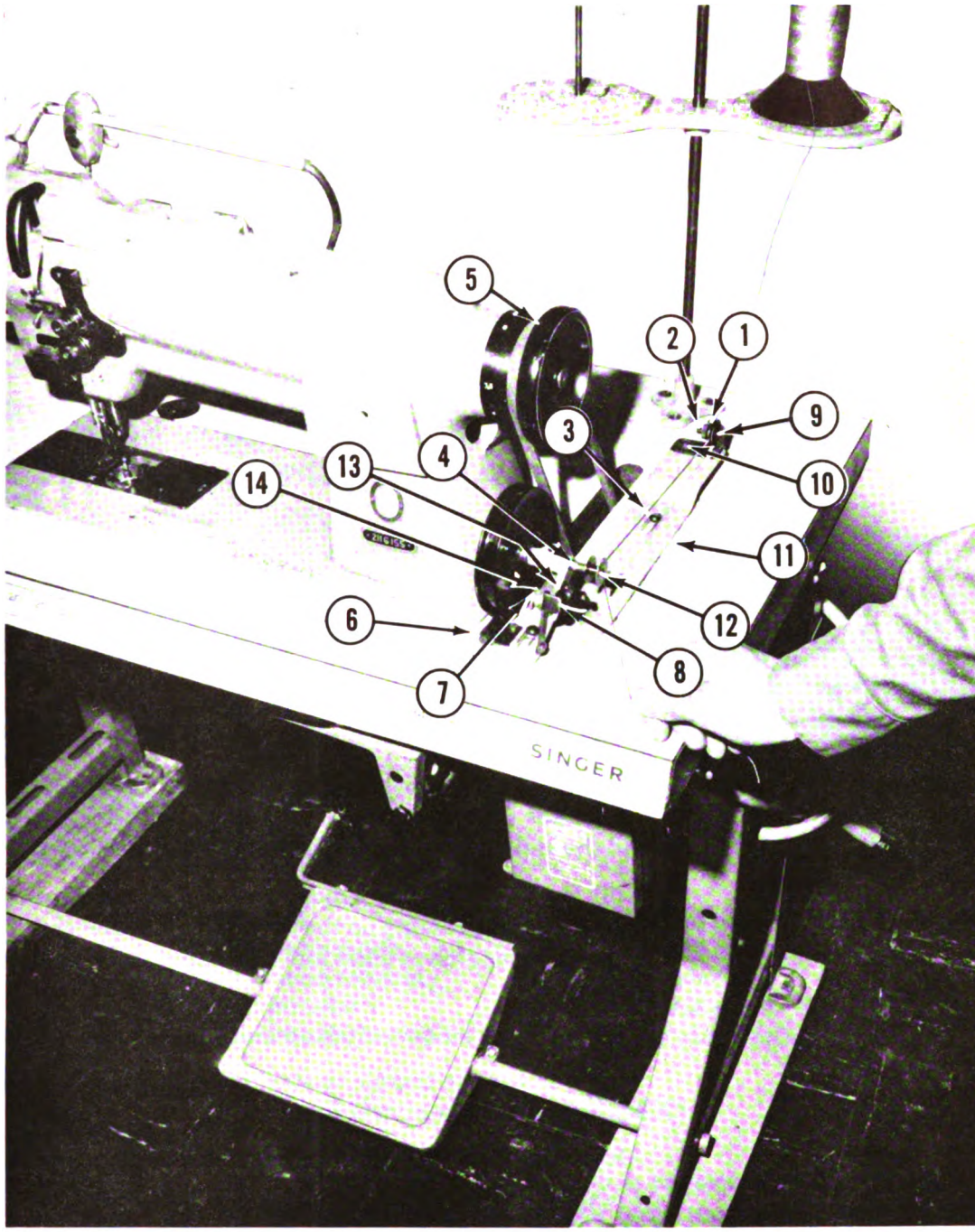

1	Tension disks	8	Frame
2	Thumb nut	9	Tension bracket
3	Wood screw	10	Tension bracket screw
4	Spindle	11	Tension bracket base
5	Pulley	12	Shuttle bobbin
6	Brake	13	Stop latch
7	Stop latch thumb lever	14	Stop-latch screw

Figure 1201.4. Components used in winding a bobbin.

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(3) Remove the needle from the needle bar.

(4) Check the needle for serviceability.

(5) Install a new needle into needle bar. The long groove of the needle must be to your left.

(6) Tighten the setscrew securely.

c. Remove the bobbin. (See fig 1201.3.)

(1) Open the slide plate by pulling it to your right.

(2) Lift the bobbin case latch by putting your fingertip under the latch.

(3) Lift the bobbin from the machine.

d. Wind the bobbin. (See fig 1201.4.)

(1) Push the bobbin on the bobbin spindle as far as it will go.

(2) Pass the thread from the bobbin thread cone on the thread unwinder down through the thread hole in the tension bracket.

(3) Pass the thread down between the bobbin winder tension disks.

(4) Pull the thread from the lower side of the tension disks to the bobbin.

(5) Pass the thread around the bottom side of the bobbin. Wind the end of the thread around the bobbin a few times.

(6) Push the bobbin winder pulley forward against the machine belt by pressing on the top latch thumb lever until the automatic stop latch catches and holds the pulley against the drivebelt.

(7) Turn the motor switch on and lift the presser foot.

(8) Depress the treadle to start the machine. Operate the machine until the bobbin is full.

(9) Remove the bobbin from the bobbin winder spindle.

(10) Turn off the motor switch.

e. Install the bobbin. (See fig 1201.3.)

(1) Hold the bobbin so that the thread pulls counter-clockwise.

(2) Slip the bobbin over the latch and center stud. Push the latch down.

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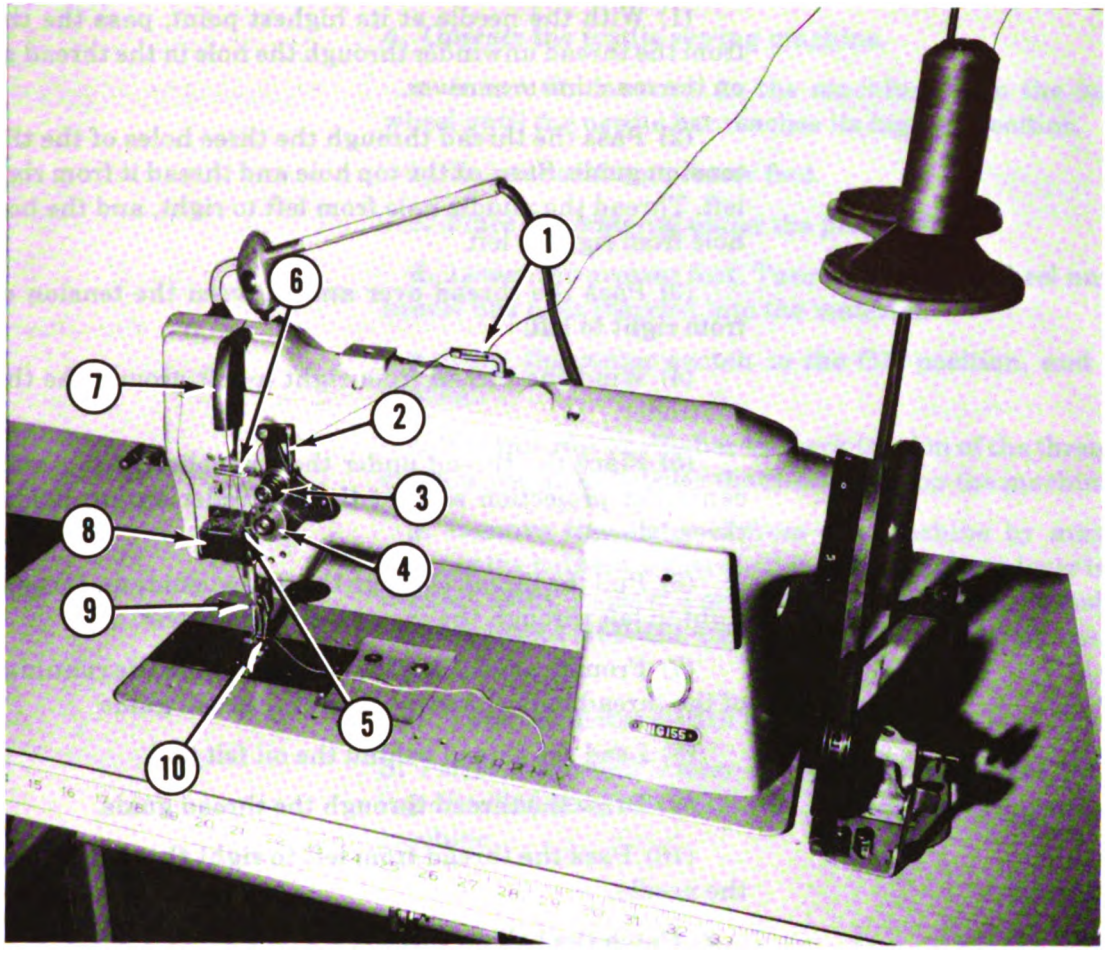

1	Thread guide	6	Thread guide
2	Thread tension guide	7	Thread takeup lever
3	Thread tension assembly	8	Oil felt pad
4	Thread controller	9	Thread guide
5	Thread-controller spring	10	Eye of the needle

Figure 1201.5. Threading sequence.

(3) Draw the thread into the slot between the bobbin case opener and the triangular projection on the bobbin case.

(4) Pull about 6 inches of the bobbin thread above the throat plate.

(5) Close the slide plate but leave enough space between the slide and throat plate for the thread to slip through when it is caught by the needle thread.

f. Thread the textile sewing machine head and needle. (See fig 1201.5.)

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(1) With the needle at its highest point, pass the thread from the thread unwinder through the hole in the thread guide on the machine arm cover.

(2) Pass the thread through the three holes of the thread tension guide. Start at the top hole and thread it from right to left. Thread the middle hole from left to right, and the bottom hole from right to left.

(3) Pass the thread over and between the tension disks from right to left.

(4) Wind the thread from right to left around the thread controller.

(5) Place the thread under the controller spring and the controller projection so that the controller spring holds the thread down.

(6) Pull the thread through the thread guide and then from right to left through the eye of the takeup lever.

(7) From the eye of the takeup lever, pass the running end of the thread back down through the thread guide.

(8) Lead the thread behind the oil felt pad.

(9) Draw the thread through the thread guide.

1

(10) Pass the thread from left to right through the eye of the needle.

g. Catch the bobbin thread.

(1) Raise the presser bar lifter to lock the presser foot in its raised position.

(2) Hold the needle thread in your left hand, and thread toward the upright arm of the machine.

(3) Turn the balance wheel with your right hand toward you until the needle moves from its highest position down and back to its highest position. If you hold the needle thread firmly during this operation and time the needle correctly, the needle thread will catch the bobbin thread. (If the needle thread does not catch at this point, repeat steps (1), (2), and (3).)

(4) Pull the needle thread up, drawing the bobbin thread up through the hole in the throat plate. Lay both threads (each about 3 to 6 inches long) back under and behind the presser foot.

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4. Operate the textile sewing machine.

a. Insert the material in the machine. Turn the balance wheel until the needle bar reaches its highest position.

b. Raise the lifting presser foot.

c. Place the material under the presser foot.

d. Lower the presser foot. Turn the balance wheel until the needle has been inserted into the material.

e. Turn the motor switch to the ON position, and begin sewing.

f. Sew one row of stitches to check tension of the thread and stitches per inch. Release the treadle to stop the machine.

g. Remove the material from the machine by manually turning the balance wheel until the thread takeup lever is at its highest point. Raise the presser foot to release the tension on the thread and material. Cut the thread 6 inches from the eye of the needle.

h. Turn the motor switch to OFF.

5. Perform operator's after-operation maintenance by cleaning dirt, lint, grit, and excess oil from all moving parts of the machine.

1

REFERENCES

The performance measures give you all the information you need to know to complete this task. No additional references are required.

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■ 101-513-1202

TROUBLESHOOT THE TEXTILE SEWING MACHINE.

CONDITIONS: You are working in the operations area of a fabric repair shop. A textile sewing machine is inoperable. Your supervisor has instructed you to locate and correct the malfunction. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: one fully assembled textile sewing machine, Phillips and flat tip screwdriver set, wrench set, sash brush, machine oil, and DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

STANDARD: You must troubleshoot each textile sewing machine within 20 minutes by completing the performance measures in sequence, without error. You must determine the probable cause for each malfunction and take the appropriate corrective actions.

PERFORMANCE MEASURES:

1

1. Troubleshoot the textile sewing machine for the following malfunctions: (See table 1202.)

   a. Needle thread breaks.

   b. Needle breaks.

   c. Bobbin thread breaks.

   d. Stitches skip or fail to lock.

   e. Thread balls up under the throat plate.

   f. Stitches do not chain.

   g. Stitch is too tight.

   h. Stitch is too loose.

   i. Seams draw.

   j. Stitches are uneven or piled up.

   k. Feed dogs strike throat plate.

   l. Lamp does not light while switch is in ON position.

   m. Motor does not start while switch is in ON position.

   n. Motor makes unusual noises.

   o. Motor does not pull the load.

2. Record on a DA Form 2404 (Equipment Inspection and Maintenance Worksheet) all malfunctions which you cannot correct. (See figure 1202.)

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Table 1202. Troubleshooting information for the textile sewing machine.

MALFUNCTION	POSSIBLE CAUSES	ACTION
Needle thread breaks.	**Thread is too heavy.**	**Use thread of the same color and texture as item to be sewed.**
	Thread is damp or defective.	**Use dry, smooth thread.**
	Machine is not threaded correctly.	**Thread the textile sewing machine head and needle.** (1) With the needle at its highest point, pass the thread from the thread unwinder through the hole in the thread guide on the machine arm cover. (2) Pass the thread through the three holes of the thread tension guide. Start at the top hole and thread it from right to left. Thread the middle hole from left to right, and the bottom hole from right to left. (3) Pass the thread over and between the tension disks from right to left. (4) Wind the thread from right to left around the thread controller. (5) Place the thread under the controller spring and the controller projection so that the controller spring holds the thread down. (6) Pull the thread through the thread guide and then from right to left through the eye of the takeup lever. (7) From the eye of the takeup lever, pass the running end of the thread back down through the thread guide. (8) Lead the thread behind the oil felt pad. (9) Draw the thread through the thread guide. (10) Pass the thread from left to right through the eye of the needle.

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Table 1202 (Continued).

MALFUNCTION	POSSIBLE CAUSES	ACTION
		Catch the bobbin thread. (1) Raise the presser bar lifter to lock the presser foot in its raised position. (2) Hold the needle thread in your left hand, and thread toward the upright arm of the machine. (3) Turn the balance wheel with your right hand toward you until the needle moves from its highest position down and back to its highest position. If you hold the needle thread firmly during this operation and time the needle correctly, the needle thread will catch the bobbin thread. (If the needle thread does not catch at this point, repeat steps (1), (2), and (3)). (4) Pull the needle thread up, drawing the bobbin thread up through the hole in the thread plate. Lay both threads (each about 3 to 6 inches long) back under and behind the presser foot.
	Needle is not installed correctly.	**Remove and install the needle.** (1) Turn the balance wheel toward you until the needle is at its highest point. (2) Loosen the needle setscrew. (3) Remove the needle from the needle bar. (4) Check the needle for serviceability. (5) Install a new needle into the needle bar. The long groove of the needle must be on your left. (6) Tighten the setscrew securely.
	Thread tension is too great.	**Adjust the needle thread tension by turning the tension thumbnut to the right to increase tension or to the left to decrease tension.**

1

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Table 1202 (Continued).

MALFUNCTION	POSSIBLE CAUSES	ACTION
	Needle is defective, blunted, or bent at the point.	Install a serviceable needle.
Needle breaks.	Needle is loose in the clamp.	Tighten the needle.
	Needle is of wrong class or variety.	Use needle size 22, class 135, and variety 17.
	Presser foot is loose.	Adjust the presser foot pressure. (1) Place a piece of material under the presser foot. (2) Adjust the pressure of the lifting presser foot on material with the regulating thumbscrew. (3) Turn the thumbscrew to the left to decrease the pressure or to the right to increase the pressure. Adjust the pressure on the vibrating presser foot by turning the thumbscrew on top of the machine head to the right to increase the pressure or to the left to decrease the pressure.
Bobbin thread breaks.	Thread is damp or defective.	Use dry, smooth thread.
	Bobbin tension is too great.	Adjust the bobbin thread tension by turning the regulating screw to the right to increase tension or to the left to decrease tension.
	Bobbin case is incorrectly threaded.	Install the bobbin. (1) Hold the bobbin so that the thread pulls counterclockwise. (2) Slip the bobbin over the latch and center stud. Push the latch down. (3) Draw the thread into the slot between the bobbin case opener and the triangular projection on the bobbin case. (4) Pull about 6 inches of the bobbin thread above the throat plate. (5) Close the slide plate but leave enough space between the slide and throat plate

1

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Table 1202 (Continued).

MALFUNCTION	POSSIBLE CAUSES	ACTION
		for the thread to slip through when it is caught by the needle thread.
	Bobbin is wound unevenly, too loosely, or is too full to revolve freely.	**Wind the bobbin.** (1) Push the bobbin on the bobbin spindle as far as it will go. (2) Pass the thread from the bobbin thread cone on the thread unwinder down through the thread hole in the tension bracket. (3) Pass the thread down between the bobbin winder tension disks. (4) Pull the thread from the lower side of the tension disks to the bobbin. (5) Pass the thread around the bottom side of the bobbin. Wind the end of the thread around the bobbin a few times. (6) Push the bobbin winder pulley forward against the machine belt by pressing on the stop latch thumb lever until the automatic stop latch catches and holds the pulley against the drivebelt. (7) Turn the motor switch on and lift the presser foot. (8) Depress the treadle to start the machine. Operate the machine until the bobbin is full. (9) Remove the bobbin from the bobbin winder spindle. (10) Turn off the motor switch.
Stitches skip or fail to lock.	**Needle is not installed correctly.**	**See the correct action for installing the needle listed for the malfunction in "needle thread breaks."**
	Needle bar is out of adjustment.	**Time the needle bar with the sewing hook. The sewing hook point must pass 1/16 of an inch above the top of the needle eye.** (1) Remove the drivebelt from balance wheel. Tilt machine to the rear to remove belt, then set machine upright.

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Table 1202 (Continued).

MALFUNCTION	POSSIBLE CAUSES	ACTION
		(2) Remove faceplate thumbscrew and plate. (3) Remove the throat plate screws and plate. (4) Turn balance wheel toward operator until the point of the sewing hook is centered with needle and needle bar has raised 3/32 of an inch from lowest position. The point of the sewing hook must be 1/16 of an inch above the top of the needle eye at this time. (5) Loosen the needle bar connecting stud pinch screw and lower or raise the needle bar until the top of the needle eye is about 1/16 of an inch below the sewing hook point. Making sure that the needle bar does not move, retighten the connecting stud pinch screw. On this adjustment there are no deviations. (6) Replace the throat plate and screws. The beveled end of throat plate is inserted away from operation. Square finger of bobbin case is inserted in bobbin case finger guide of throat plate.
Thread balls up under the throat plate.	**Thread tension is out of adjustment.**	**See the correct action for thread tension listed for the malfunction "needle breaks."**
Stitches do not chain.	**Threading is not correct or threads are broken.**	**See the correct action for threading machine listed for the malfunction "needle breaks."**
Stitch is too tight.	**Bobbin tension is too great.**	**See the correct action for bobbin tension listed for the malfunction "bobbin thread breaks."**
Stitch is too loose.	**Thread tension is too loose.**	**See the correct action for bobbin tension listed for the malfunction "bobbin thread breaks."**

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Table 1202 (Continued).

MALFUNCTION	POSSIBLE CAUSES	ACTION
Seams drew.	Thread tension is too tight.	See the correct action for thread tension listed for the malfunction "needle thread breaks."
	Operator is feeding material at an improper speed.	Operator must feed material in relation to machine speed.
Stitches are uneven or piled up.	Not enough pressure on presser foot.	Increase the pressure.
	Feed dogs are too low.	Report this to your supervisor.
Feed dogs strike the throat plate.	Feed dogs are out of adjustment.	Report this to your supervisor.
Lamp does not light when switch is in the ON position.	Light cord is not plugged into the electrical power receptacle.	Plug cord in.
	Light cord is broken.	Report this to your supervisor
	Incandescent lamp (bulb) is burned out.	Replace the lamp.
	Lamp assembly or switch is defective.	Report this to your supervisor.
	Electrical power receptacle is defective.	Report this to your supervisor.
Motor does not start when switch is in the ON position.	Power cable is not plugged into electrical power receptacle.	Plug power cable in.
	Power cable is broken.	Report this to your supervisor.
	Switch is defective.	Report this to your supervisor.
Motor makes unusual noises.	Motor is defective.	Shut down the sewing machine and report it to your supervisor.
Motor does not pull the load.	Drivebelt is slipping.	Report this to your supervisor.
	Voltage is not correct or the motor is faulty.	Report this to your supervisor.

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EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET

For use of this form, see TM 38-750; the proponent agency is the Office of the Deputy Chief of Staff for Logistics.

1. ORGANIZATION	2. NOMENCLATURE AND MODEL
133d MAINT CO DS	MACHINE, SEWING, TEXTILE - 111W155

3. REGISTRATION/SERIAL/FSN	4a. MILES	b. HOURS	c. ROUNDS FIRED	d. HOT STARTS	5. DATE	6. TYPE INSPECTION
000-00-0000-000	/	/	/	/	12 MAY 19XX	DAILY-OPERATOR

7. APPLICABLE REFERENCE			
TM NUMBER	TM DATE	TM NUMBER	TM DATE

INSTRUCTIONS - Perform each check listed in the TM applicable to the inspection performed. Following the sequence listed in pertinent TM, complete form as follows:

COLUMN a - Enter TM item number.

COLUMN b - Enter the applicable condition status symbol.

COLUMN c - Enter deficiencies and shortcomings.

COLUMN d - Show corrective action for deficiency or shortcoming listed in Column c.

COLUMN e - Individual ascertaining completed corrective action initial in this column.

STATUS SYMBOLS

"X"—Indicates a deficiency in the equipment that places it in an inoperable status.

CIRCLED "X"—Indicates a deficiency, however, the equipment may be operated under specific limitations as directed by higher authority or as prescribed locally, until corrective action can be accomplished.

HORIZONTAL DASH "(-)"—Indicates that a required inspection, component replacement, maintenance operation check, or test flight is due but has not been accomplished, or an overdue MWO has not been accomplished.

DIAGONAL "(/)"—Indicates a materiel defect other than a deficiency which must be corrected to increase deficiency or to make the item completely serviceable.

LAST NAME INITIAL IN BLACK, BLUE-BLACK INK, OR PENCIL-Indicates that a completely satisfactory condition exists.

FOR AIRCRAFT-Status symbols will be recorded in red.

ALL INSPECTIONS AND EQUIPMENT CONDITIONS RECORDED ON THIS FORM HAVE BEEN DETERMINED IN ACCORDANCE WITH DIAGNOSTIC PROCEDURES AND STANDARDS IN THE TM CITED HEREON.

8a. SIGNATURE (Person(s) performing inspection)	8b. TIME	9a. SIGNATURE (Maintenance Supervisor)	9b. TIME	10. MAN HOURS REQ
John Doe	0815			

TM ITEM NO. a	STATUS b	DEFICIENCIES AND SHORTCOMINGS c	CORRECTIVE ACTION d	INITIAL WHEN CORRECTED e
1		NEEDLE BAR IS BENT		
2		FEED DOGS MISSING		
3		LIGHT CORD IS BROKEN		

RECORD ON THIS FORM ONLY DEFICIENCIES THAT CANNOT BE CORRECTED AT YOUR LEVEL. SEE SAMPLE ENTRIES.

DA FORM 1 APR 79 2404

Replaces edition of 1 Jan 64, which will be used

Figure 1202. Entries on DA Form 2404.

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1203

PREPARE AND OPERATE THE HEAVY-DUTY SEWING MACHINE (MODEL 7-33).

CONDITIONS: You are working in the preparation and operations area of a canvas repair shop. A heavy-duty sewing machine is to be used to repair canvas items submitted for repair. Your supervisor has instructed you to prepare and operate the machine before the repairs are made. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: a fully assembled heavy-duty sewing machine, DA Form 2404 (Equipment Inspection and Maintenance Worksheet), lubrication order, screwdriver, wrench set (open end), pliers, machine oil, sash brush, cleaning rags, thread and needle.

STANDARD: You must complete all performance measures in sequence, within 90 minutes, without error to prepare and operate each heavy-duty sewing machine. You must thread the machine without missing any thread points and adjust the machine to sew 5 to 7 stitches per inch.

1 PERFORMANCE MEASURES:

1. Perform before-operation maintenance. (See figure 1203.1.)

   a. Check the table assembly for

      (1) cut, cracked, broken, warped, and dirty tabletop.

      (2) loose or missing bolts and nuts.

      (3) loose mounting to the folding stand and to make certain the table assembly is level.

   b. Check the machine head for

      (1) dirty surfaces and grease deposits.

      (2) bent, broken, or missing components and for loose mounting.

      (3) broken or excessively worn needle point, for bent or broken shaft, and for loose mounting.

      (4) correctly installed needle.

   c. Check the lamp assembly for

      (1) loose or missing bolts, nuts, and screws, and loose mounting.

      (2) dirty, cracked, or broken housing and lens.

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(3) frayed insulation and broken wiring on the electrical cord.

(4) broken lamp switch.

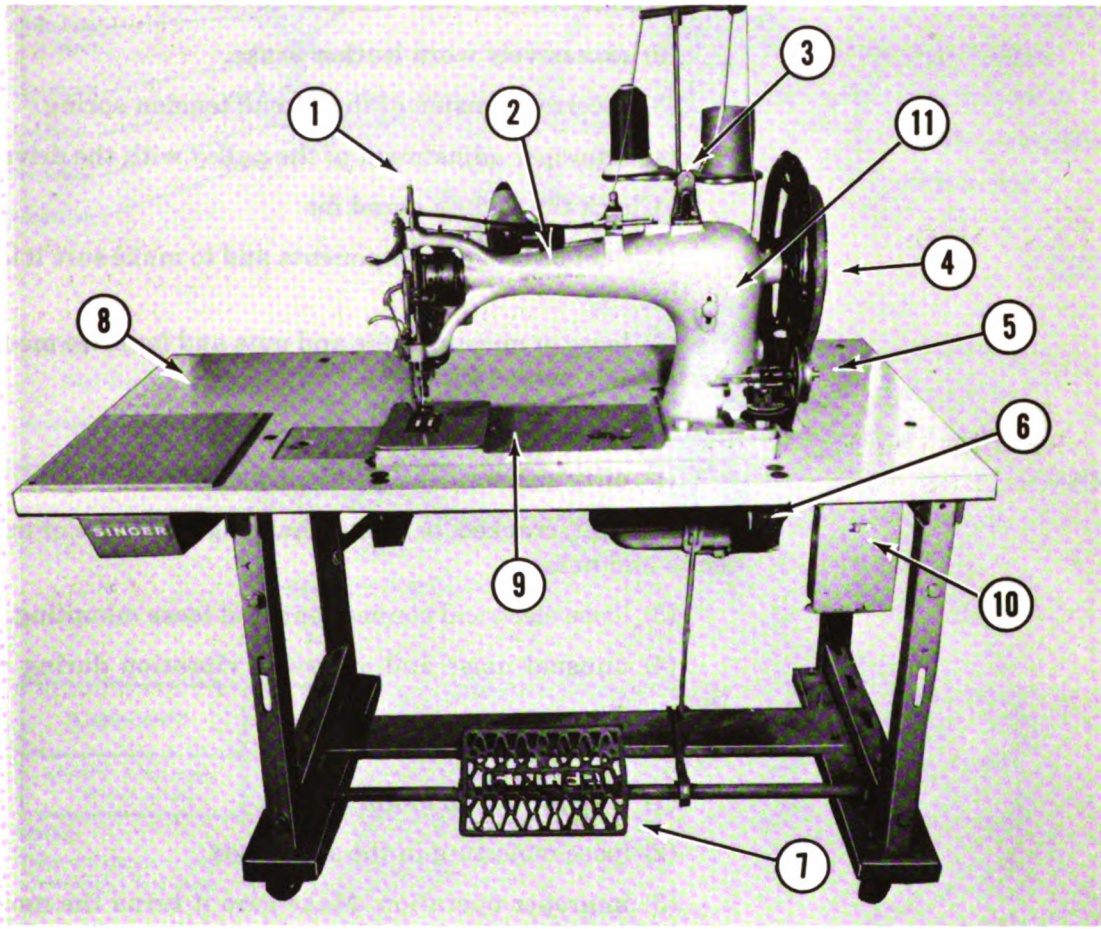
(5) improper operation of switch.

(6) burned out lamp (bulb).

d. Check the thread unwinder for

(1) loose or missing bolts, nuts, and screws.

(2) bent or broken components and for loose mounting.



1	Pressure-regulating thumbscrew	7	Treadle
2.	Arm	8	Tabletop
3	Thread stand	9	Bed
4	Balance wheel	10	Switch
5	Bobbin winder	11	Feed-regulator thumbscrew
6	Motor		

Figure 1203.1. Components of the heavy-duty sewing machine.

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e. Check the drivebelt for breaks and excessive wear and to make sure it is not frayed.

f. Check the pulley for

(1) loose belt mounting.

(2) cracked, chipped, or broken edges, and loose mounting.

(3) a 1/4-inch distance between the sides of the belt when both sides of the belt are pressed inward midway between the pulleys.

g. Check the bobbin winder for

(1) bent, broken, loose, or missing components and loose mounting.

(2) excessively worn leather brake.

(3) incorrect tension of the thread tension spring.

(4) improper adjustment of the pulley with the drivebelt.

h. Check the folding stand for

(1) bent or broken components and to make sure it is level on the floor.

(2) loose or missing bolts and nuts and for loose mounting to the table assembly.

i. Check the electric motor for

(1) dirty surfaces and grease deposits.

(2) bent, cracked, or broken housing and loose or missing bolts and nuts.

(3) loose electrical connections and loose mounting.

(4) unusual noise and excessive vibration during operation.

j. Check the motor switch for

(1) bent or broken motor switch.

(2) loose mounting in the switchbox.

(3) improper operation. Make sure it turns the motor on and off.

k. Check the starting treadle.

(1) for bent, broken, loose, or missing components.

(2) to make certain it engages the motor with the machine.

2. Lubricate the heavy-duty sewing machine using LO 10-3530-202-10-3. (See figure 1203.2.)

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LUBRICATION ORDER

LO10-3530-202-10-3

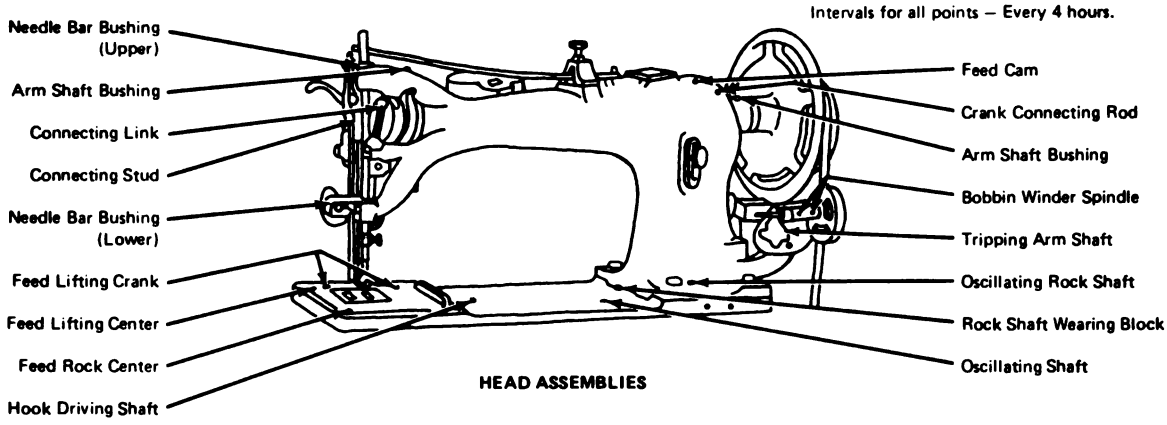
29 MARCH 1965

Reference: C9100-SL

MACHINE, SEWING (SINGER MODEL 7-33)

Reduce intervals under severe operating conditions.
Lubricant for all points – LO

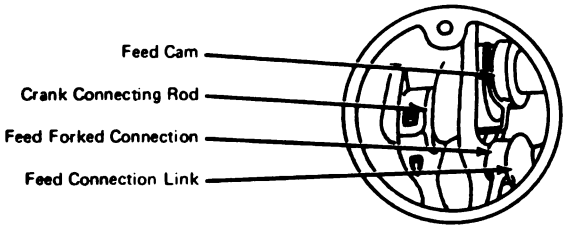
Clean parts before lubricating sewing machine.
Wash parts with SOLVENT, drycleaning.
Intervals for all points – Every 4 hours.



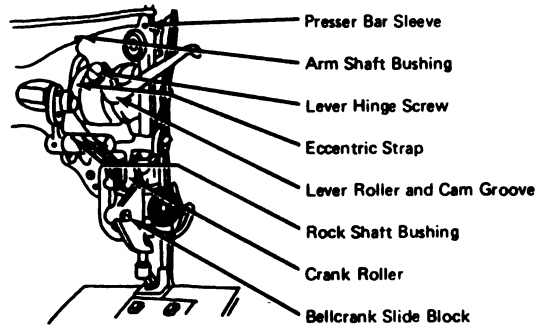
HEAD ASSEMBLIES

FOLD

FOLD



ARM SHAFT ASSEMBLIES



FACE ASSEMBLIES

–KEY–

LUBRICANTS	EXPECTED TEMPERATURES			INTERVALS
	above + 32° F.	+ 40° F. to – 10° F.	0° F. to – 65° F.	
LO—OIL, Lubricating, general purpose	LO Below 32° F. it is recommended that sewing machine be operated in a heated tent or building			4—Every 4 hours

NOTES:

Twice daily lubricate those moving parts indicated above by arrows with 1 to 3 drops of general purpose lubricating oil (LO).

A copy of this lubrication order will remain with the equipment at all times; instructions contained herein are mandatory.

By Order of the Secretary of the Army:

EARLE G. WHEELER
General, United States Army
Chief of Staff

OFFICIAL:

J. C. LAMBERT
Major General, United States Army
The Adjutant General

MEC 3530-203-10/48

Figure 1203.2 Lubrication Order 10-3530-202-10-3 for heavy-duty sewing machine.

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3. Prepare the heavy-duty machine for operation.

a. Select the correct needle and thread.

(1) Use size 22 or 26 needle.

(2) Use thread of the same color and texture as the item to be repaired.

b. Remove and install the needle.

(1) Turn the balance wheel toward you until the needle is at its highest point.

(2) Loosen the needle setscrew.

(3) Remove the needle from the needle bar.

(4) Check the needle for serviceability.

(5) Install a new needle into needle bar. The long groove of the needle must be to your left.

(6) Tighten the setscrew securely.

c. Remove the bobbin. (See figure 1203.3.)

(1) Turn the balance wheel toward you until the needle is at its lowest point.

(2) Remove the wood bed cover plate.

(3) Open the bobbin case.

(a) Insert the curved tip of the shuttle cylinder opener or a small flat-tip screwdriver into the slot in the spring latch beneath the cylinder.

(b) Allow the bobbin to drop from the cylinder.

(4) After removing the bobbin, close the cylinder to keep it from breaking off.

d. Wind the bobbin. (See figure 1203.4.)

(1) Slide the bobbin into the bobbin winder spindle as far as it will go. Make sure the small pin on the spindle shaft shoulder enters the hole in the bobbin rim.

(2) Pass the thread from the thread unwinder tension disk to the hole on the inside of the bobbin. Pull the thread through the hole from right to left and wind the thread around the bobbin a few times.

(3) Push the bobbin winder stop latch into position against the bobbin. Make sure the friction pulley presses firmly against the balance wheel.

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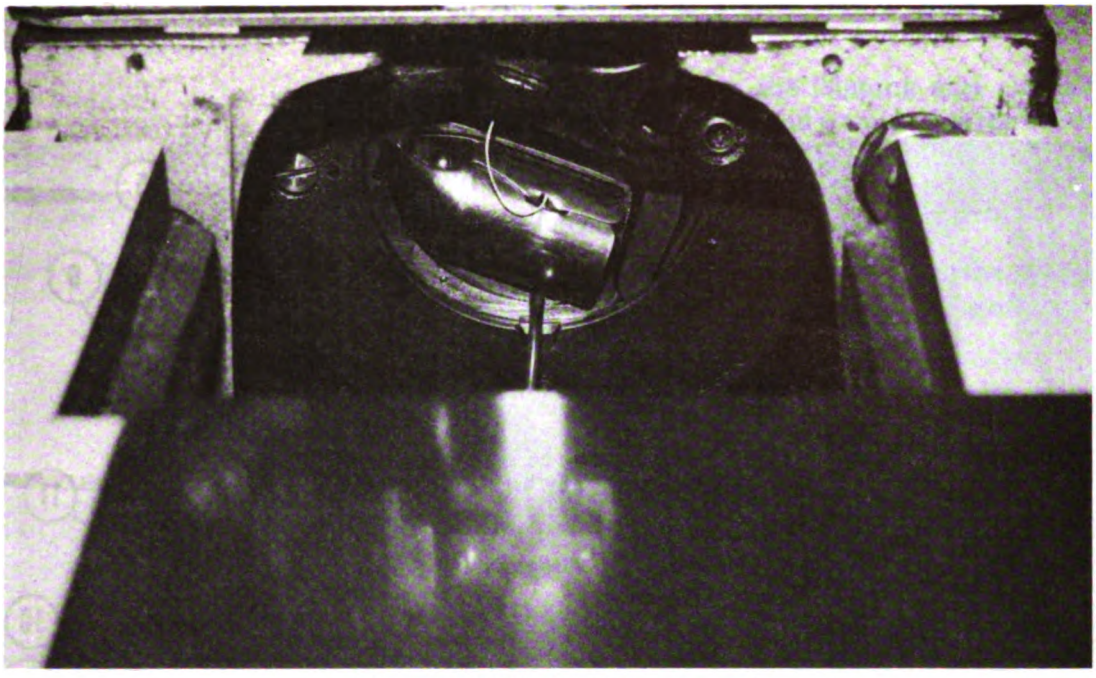

Figure 1203.3 Bobbin removal.

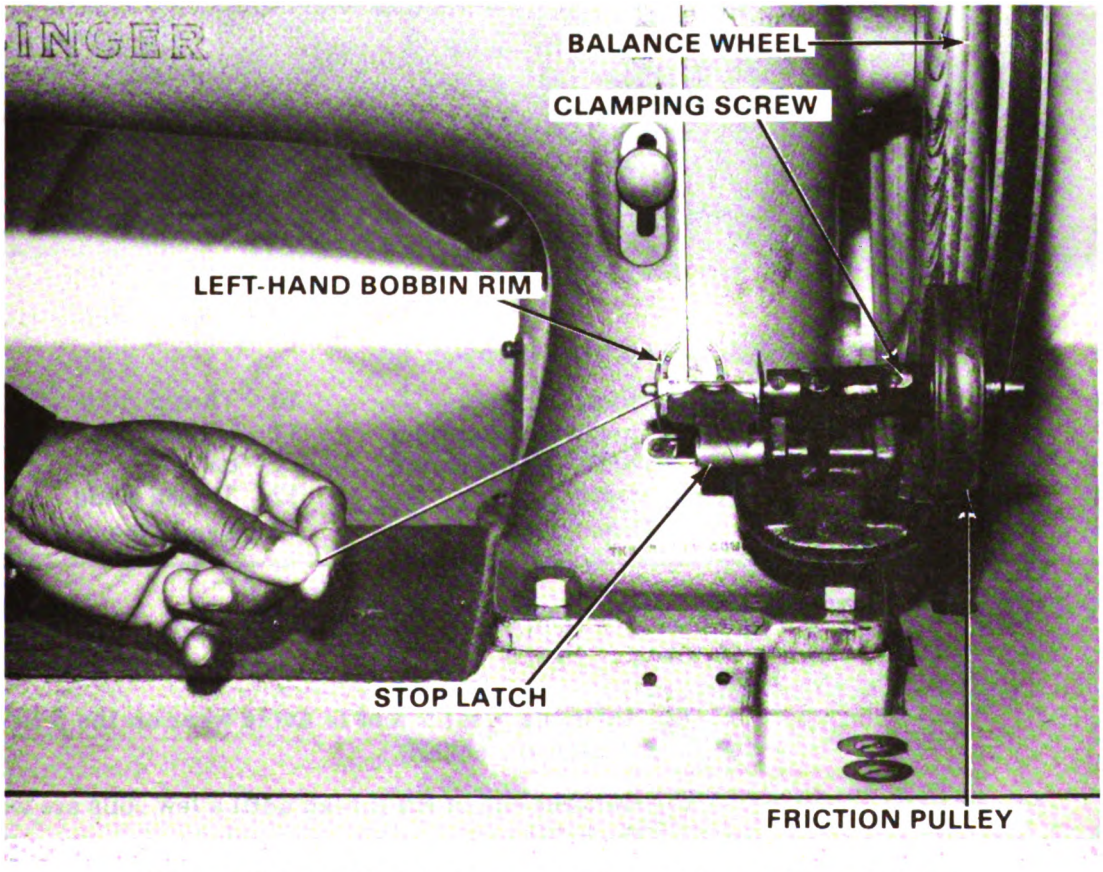

Figure 1203.4 Machine components used in winding a bobbin.

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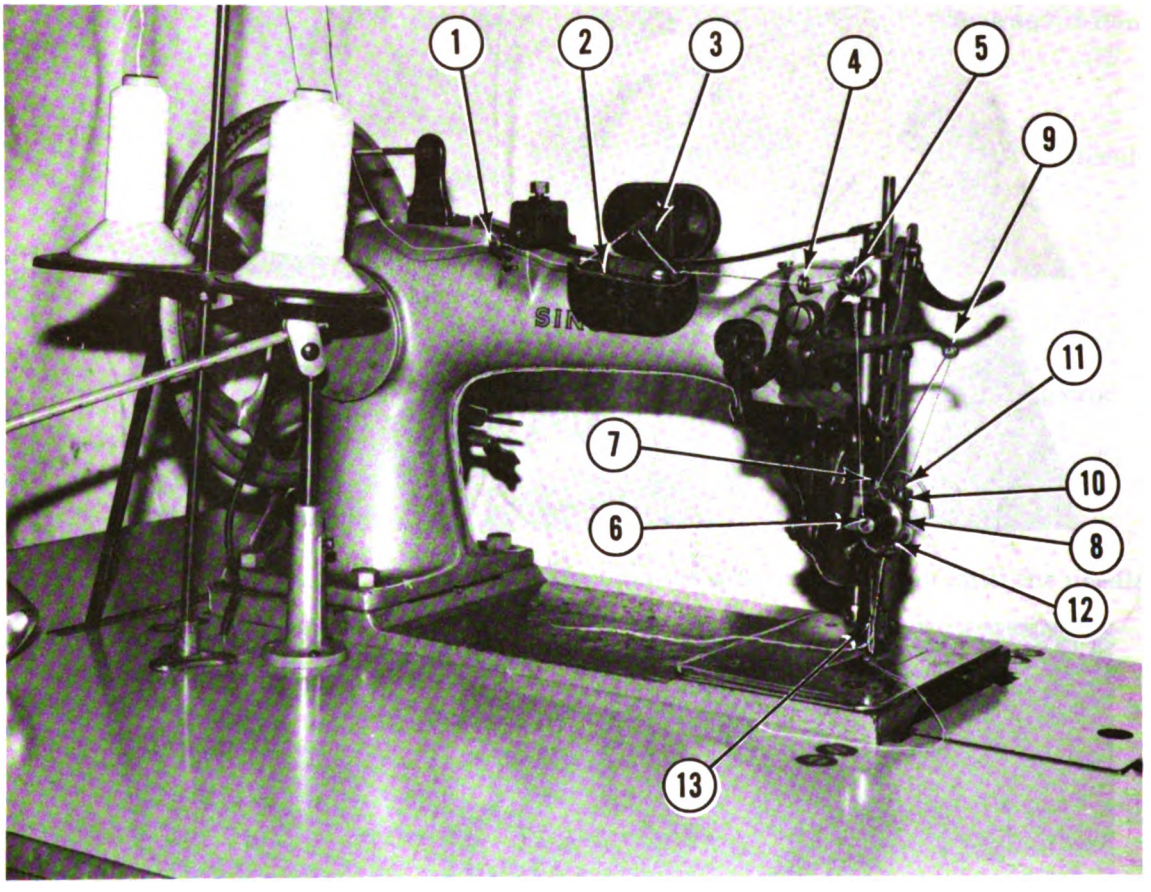

1	Thread guide	6	Thread regulator	10	Thread guide
2	Oilcup hole	7	Thread takeup spring	11	Vibrating presser bar slot
3	Oilcup stud	8	Thread takeup spring staple	12	Thread guide
4	Thread guide			13	Eye of the needle
5	Tension assembly	9	Thread takeup lever		

Figure 1203.5. Threading sequence.

(4) Raise the presser foot to avoid wear on the feed dogs while you wind the bobbin.

(5) Hold the end of the thread until a few coils are wound around the bobbin.

(6) Break off the end of the thread as close to the bobbin rim as you can.

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(7) Run the machine at a slow rate of speed until the bobbin is full.

(8) When necessary, adjust the tripping arm clamping screw to regulate the amount of thread wound on to the bobbin.

e. Install the bobbin.

(1) Place the needle bar in its lowest position.

(2) Open the cylinder. Place the bobbin in the cylinder while you hold the bobbin with the thread drawing off to your left.

(3) Pull the thread into the tension spring slot. (Leave about 4 inches of thread.)

(4) Close the bobbin cylinder.

f. Thread the heavy-duty sewing machine (fig 1203.5) by passing the thread

(1) from the thread comb up and over the thread unwinder eyelet,

(2) through the first thread guide from right to left,

(3) from right to left through the hole on the right side of the oilcup,

(4) through the oilcup,

(5) through the slot in the left side of the oilcup (Now close the oilcup cover.),

(6) from right to left through the second thread guide.

(7) through or between the tension disks of the needle tension assembly,

(8) down through the thread regulator.

(9) up through the takeup spring,

(10) under the thread takeup spring staple hook,

(11) up through the takeup lever,

(12) down through the eyelet of the thread regulator,

(13) down through the vibrating presser bar slot from left to right,

(14) down through the needle bar thread guide,

(15) through the needle eye from left to right,

(16) through the hole in the lifting presser foot.

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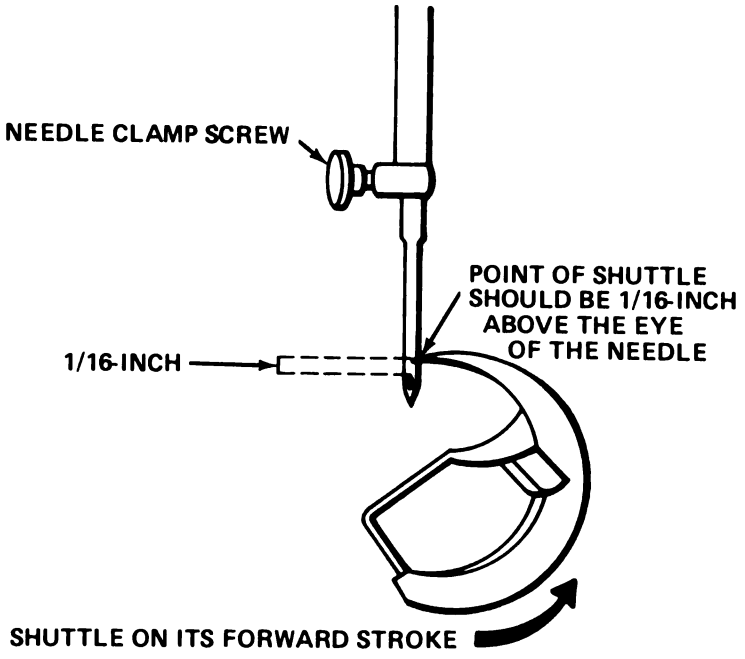

Figure 1203.6. Time the needle with the shuttle point.

1

g. Catch the bobbin thread by turning the balance wheel toward you until the needle thread picks up the bobbin thread. Pull both threads until at least 6 inches are drawn under and behind the presser foot.

4. Operate the heavy-duty sewing machine.

a. Insert the material in the machine. Turn the balance wheel until the needle bar reaches its highest position.

b. Raise the lifting presser foot.

c. Place the material under the presser foot.

d. Lower the presser foot. Turn the balance wheel until the needle has been inserted into the material.

e. Turn the motor switch to the ON position and sew.

5. Disassemble the shuttle race assembly.

a. Remove the plates.

(1) Remove the cloth plate screws. Lift the plate up and off.

(2) Remove the throat plate screws. Lift the plate up and off.

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b. Remove the shuttle race back spring screw and spring. (See figure 1203.7.)

(1) Turn the balance wheel toward you until the needle bar connecting link is at its top stroke. At this point the heel of the shuttle is at the top.

(2) Turn the screws on the shuttle keeper to the left.

(3) Turn the shuttle race back spring to the right, and pull down on the spring.

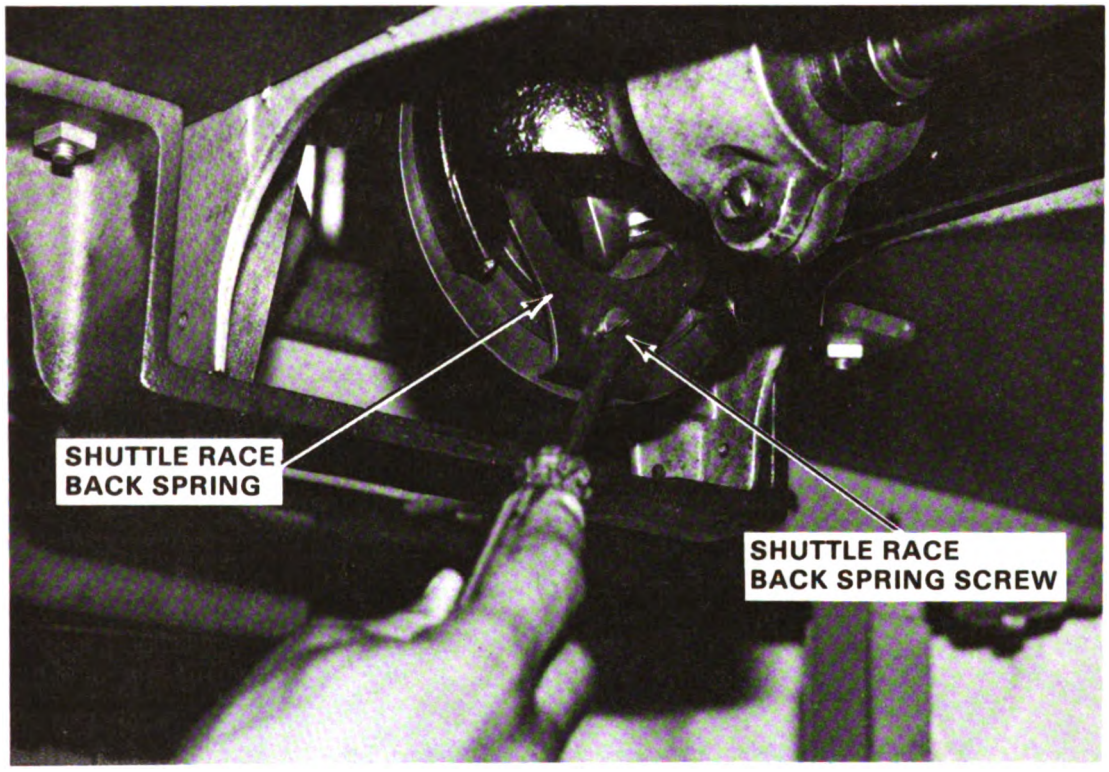

Figure 1203.7. Remove shuttle race back spring screw and spring.

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c. Remove the shuttle race body.

(1) Use a screwdriver to remove the two screws (fig 1203.8).

(2) Hold the shuttle race with left hand, and take the race back off the dowel pins.

(3) Hold the cylinder with your right hand, and place the fingers of your left hand on the point of the cylinder. (See figure 1203.9.) Pull the shuttle race back to the left and off the shuttle drive. (See figure 1203.10.)

d. Clean, inspect, and oil the shuttle race assembly.

(1) Clean each part with a sash brush to remove dust, dirt, grit, and lint from the machine.

(2) Check all parts for nicks or burrs.

(3) Apply a light coating of oil to the surface of the parts.

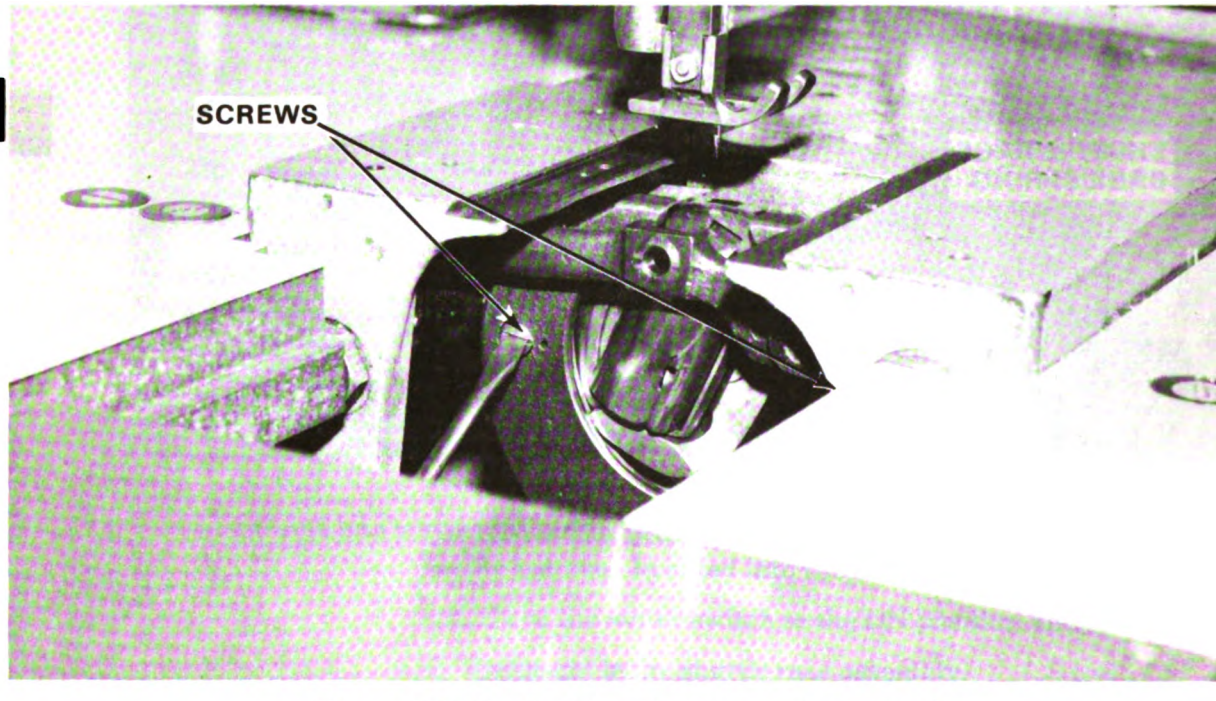

Figure 1203.8. Position of screws to be removed.

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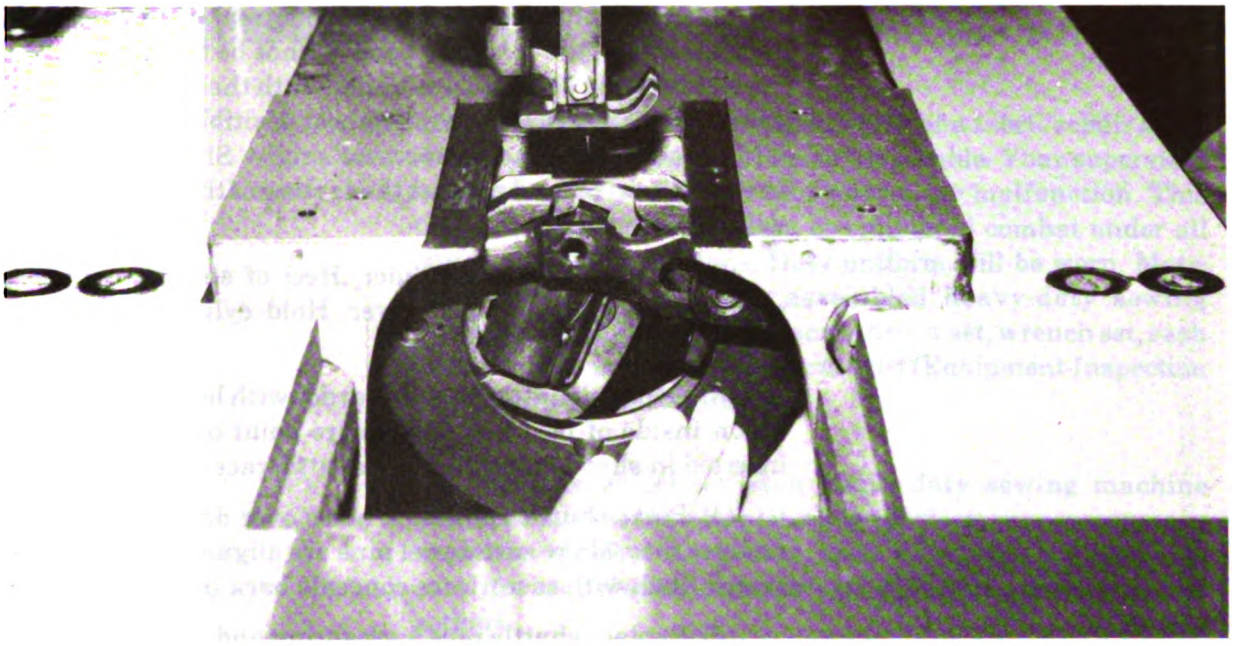

Figure 1203.9. Remove the cylinder.

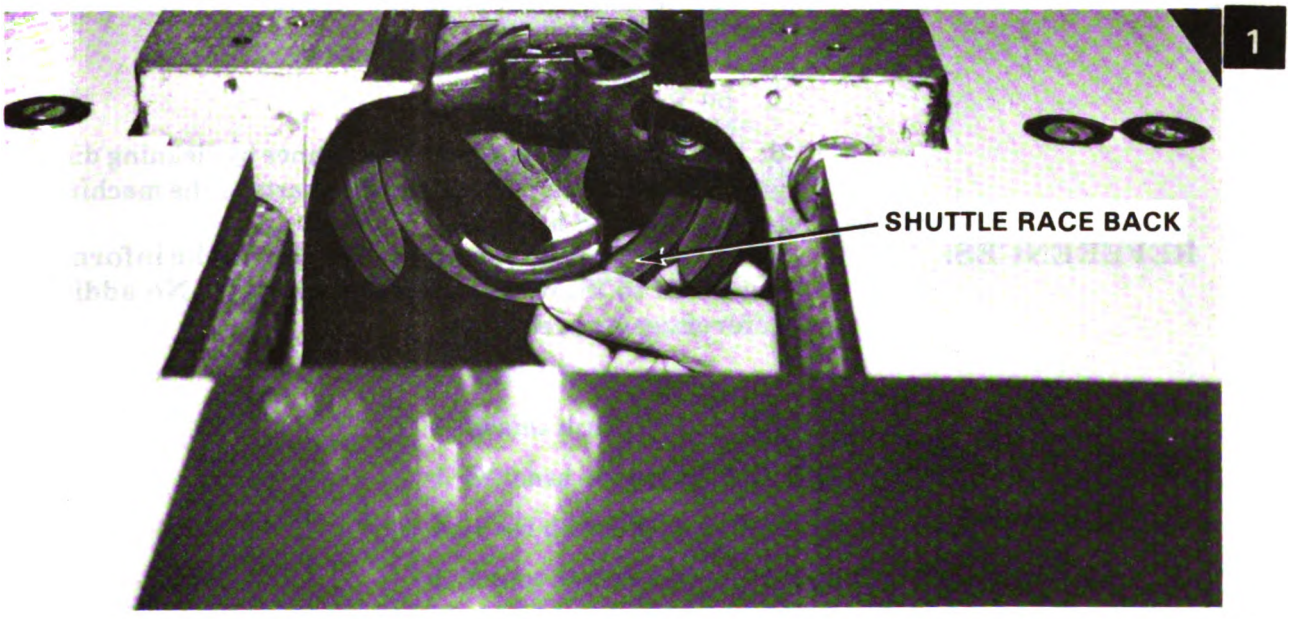

Figure 1203.10. Remove the shuttle race back.

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e. Reassemble and install the shuttle race.

(1) Insert shuttle race back. When replacing the shuttle race assembly, the machine head cannot be tilted back. Work performed must be done from underneath the table. Needle bar connecting link must be in its highest position. Beveled side of end of back will be facing operator's right. Slide the back over the shuttle driver and against the casting of the machine. Back will stay in place.

(2) Replace shuttle cylinder. Heel of shuttle cylinder is placed up against shuttle driver. Hold cylinder with index finger and thumb of right hand.

(3) Replace shuttle race. Take race with left hand and slide up on inside of feed bar. Make sure point of shuttle body is inserted in shuttle race. Replace shuttle race screws.

(4) Place shuttle race back holes over dowel pins and up against race. Make sure dowel pins are aligned with holes and seated flush with race. (Race conceals back in illustration.)

(5) Replace shuttle race back spring and screw. Make sure shuttle race back is inserted on dowel pins. Fingers of spring must be in between the opposite dowel pins. Insert screw and tighten.

1

(6) Replace throat plate and screws.

(7) Replace cloth plate and screws.

(8) Replace door of stand.

6. Perform after-operation maintenance by cleaning dirt, lint, grit, and excess oil from all moving parts of the machine.

REFERENCES:

The performance measures give you all the information you need to know to complete this task. No additional references are required.

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■ 101-513-1204

TROUBLESHOOT THE HEAVY-DUTY SEWING MACHINE.

CONDITIONS: You are working in the operations area of a fabric repair shop. A heavy-duty sewing machine is inoperable. Your supervisor has instructed you to find and correct the malfunction. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: one fully assembled heavy-duty sewing machine, Phillips and flat tip screwdriver set, wrench set, sash brush, machine oil, and DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

STANDARD: You must troubleshoot each heavy-duty sewing machine within 20 minutes by completing the performance measures in sequence, without error. You must determine the probable cause for each malfunction and take the appropriate corrective actions.

PERFORMANCE MEASURES:

1. Troubleshoot the heavy-duty sewing machine for the following malfunctions. (See table 1204.)

   a. Needle thread breaks.

   b. Needle breaks.

   c. Bobbin thread breaks.

   d. Stitches skip or fail to lock.

   e. Thread balls up under the throat plate.

   f. Stitches do not chain.

   g. Stitch is too tight.

   h. Stitch is too loose.

   i. Seams draw.

   j. Stitches are uneven or piled up.

   k. Feed dogs strike throat plate.

   l. Lamp does not light while switch is in ON position.

   m. Motor does not start while switch is in ON position.

   n. Motor makes unusual noises.

   o. Motor does not pull the load.

2. Record on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) all malfunctions you cannot correct. (See fig 1204.)

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Table 1204. Troubleshooting information for the heavy-duty sewing machine.

MALFUNCTION	POSSIBLE CAUSES	ACTION
Needle thread breaks.	**Thread is too heavy.**	**Use correct size thread.** **Use thread of the same color and texture as the item to be repaired.**
	Thread is damp or defective.	**Use dry, smooth thread.**
	Machine is not threaded correctly.	**Thread machine correctly. Thread** (1) from the thread comb up and over the thread unwinder eyelet, (2) through the first thread guide from right to left, (3) from right to left through the hole on the right side of the oilcup, (4) through the oilcup, (5) through the slot in the left side of the oilcup (Now close the oilcup cover.), (6) from right to left through the second thread guide, (7) through or between the tension disks of the needle tension assembly (8) down through the thread regulator, (9) up through the takeup spring, (10) under the thread takeup spring staple hook, (11) up through the takeup lever, (12) down through the eyelet of the thread regulator, (13) down through the vibrating presser bar slot from left to right (14) down through the needle bar thread guide, (15) through the needle eye from left to right, (16) through the hole in the lifting presser foot.
	Needle is not installed correctly.	**Install needle correctly.** (1) Turn the balance wheel toward the operator until the needle bar reaches its highest point. (2) Loosen the thumbscrew, insert the needle into the needle clamp as far as it will go, (3) Long thread groove should face to the left and needle eye should be directly in line with the machine arm. (4) Tighten the thumbscrew securely.

1

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Table 1204. (Continued).

MALFUNCTION	POSSIBLE CAUSES	ACTION
	Thread tension is too great.	**Reduce tension by turning the thumbnut to the right to increase tension and to the left to reduce the tension.**
	Needle is defective, blunted, or bent at the point.	**Install a serviceable needle.**
Needle breaks.	**Needle is loose in the clamp.**	**Tighten the needle clamp.** (1) Turn the balance wheel until the needle bar is at its highest point. (2) Loosen the clamping screw at the lower end of the needle bar. (3) Pull the needle down from the needle bar. Do not remove the needle from the clamping screw. (4) Push the needle back up into the needle bar as far as it will go and tighten the clamping screw.
	Needle is of wrong class or variety.	**Use needle size 26, class 7, and variety 1.**
	Presser foot is loose.	**Adjust the pressure on the presser foot.** (1) Loosen the locknut on the vibrating presser bar spring stud located on the top center of the machine arm. (2) Turn the stud to the right to increase pressure and to the left to decrease the pressure.
Bobbin thread breaks.	**Thread is damp or defective.**	**Use dry, smooth thread.**
	Bobbin tension is too great.	**Adjust the bobbin thread tension by turning the regulating screw clockwise to increase tension and counterclockwise to reduce the tension.**
	Bobbin is wound unevenly, too loosely, or is too full to revolve freely.	**Remove the bobbin.** (1) Turn the balance wheel toward you until the needle is at its highest point. (2) Remove the wood bed cover plate. (3) Open the bobbin case. Put the small curved tip of the shuttle opener or a small flat tip screwdriver into the slot in the spring latch beneath the cylinder. (4) After removing the bobbin, close the cylinder to keep it from breaking off.

1

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Table 1204. (Continued).

MALFUNCTION	POSSIBLE CAUSES	ACTION
		Wind the bobbin. (1) Slide the bobbin into the bobbin winder spindle as far as it will go. Make sure the small pin in the spindle shaft shoulder enters the hole in the bobbin rim. (2) Thread the hole on the left side of the bobbin rim by passing the thread from the unwinder tension disk to the hole and through it. (3) Push the bobbin winder stop latch into position against the bobbin. Make sure the friction pulley presses firmly against the balance wheel. (4) Raise the presser foot to avoid wear on the feed dogs while you wind the bobbin. (5) Hold the end of the thread until a few coils are wound around the bobbin. (6) Break off the end of the thread as close to the bobbin rim as you can. (7) Run the machine at a slow rate of speed until the bobbin is full. (8) When necessary, adjust the tripping arm clamping screw to regulate the amount of thread wound on to the bobbin.
	Bobbin case is incorrectly threaded.	**Install the bobbin.** (1) Place the needle bar in its lowest position. (2) Open cylinder. Place the bobbin in the cylinder while you hold the bobbin with the thread drawing off to your left. (3) Pull the thread into the tension spring slot. (Leave about 4 inches of thread.) (4) Close the bobbin cylinder.
Stitches skip or fail to lock.	**Needle is not installed correctly.**	**See the correct action for installing the needle listed for the malfunction "needle thread breaks."**
	Needle bar is out of adjustment.	**Adjust needle bar.** (1) Remove cloth plate screws and plate. (2) Remove throatplate screws and plate.

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Table 1204. (Continued).

MALFUNCTION	POSSIBLE CAUSES	ACTION
		(3) Turn balance wheel toward you, the operator, until the needle bar is at its lowest position. (Shuttle is now to the rear of the needle.) (4) Turn balance wheel until the needle bar has raised 1/4 of an inch on its up stroke. The point of the shuttle should cross the center of the needle at a point 1/32 of an inch above the top of the needle eye. (5) Loosen the two setscrews or the needle bar connecting stud. (6) Move needle bar up or down until top of needle eye is 1/16 of an inch below the point of the shuttle. (7) Holding the needle bar so it doesn't move, tighten the set-screws on needle bar connection stud. (8) Replace the throatplate and screws. (9) Replace cloth plate and screws.
Thread balls up under the throat plate.	**Thread tension is out of adjustment.**	**See the correct action for thread tension listed for the malfunction "needle thread breaks."**
Stitches do not chain.	**Threading is not correct or threads are broken.**	**See the correct action for threading machine listed for the malfunction "needle thread breaks."**
Stitch is too tight.	**Bobbin tension is too great.**	**See the correct action for thread tension listed for the malfunction "needle thread breaks."**
Stitch is too loose.	**Thread tension is too loose.**	**See the corract action for thread tension listed for the malfunction "needle thread breaks."**
Seams draw.	**Thread tension is too tight.**	**See the correct action for thread tension listed for the malfunction "needle thread breaks."**
	Operator is feading material at an improper speed.	**Operator must feed material in relation to machine speed.**
Stitches are uneven or piled up.	**Not enough pressure on presser foot.**	**See the correct action for adjusting the presser foot listed in the malfunction "needle breaks."**

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Table 1204. (Continued).

MALFUNCTION	POSSIBLE CAUSES	ACTION
	Feed dogs are too low.	Report this to your supervisor.
Feed dogs strike the throat plate.	Feed dogs are out of adjustment.	Report this to your supervisor.
Lamp does not light when switch is in the ON position.	Light cord is not plugged into the electrical power receptacle.	Plug cord in.
	Light cord is broken.	Report this to your supervisor.
	Incandescent lamp (bulb) is burned out.	Replace lamp.
	Lamp assembly or switch is defective.	Report this to your supervisor.
	Electrical power receptacle is defective.	Report this to your supervisor.
Motor does not start when switch is in the ON position.	Power cable is not plugged into electrical power receptacle.	Plug power cable in.
	Power cable is broken.	Report this to your supervisor.
	Switch is defective.	Report this to your supervisor.
Motor makes unusual noises.	Motor is defective.	Shut down the machine and report it to your supervisor.
Motor does not pull the load.	Drivebelt is slipping.	Report this to your supervisor.
	Voltage is improper or the motor is faulty.	Report this to your supervisor.

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EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET

For use of this form, see TM 38-750; the proponent agency is the Office of the Deputy Chief of Staff for Logistics.

1. ORGANIZATION	2. NOMENCLATURE AND MODEL
133d MAINT CO DS	MACHINE, SEWING, HEAVY DUTY, M 7-33

3. REGISTRATION/SERIAL/FSN	4a. MILES	b. HOURS	c. ROUNDS FIRED	d. HOT STARTS	5. DATE	6. TYPE INSPECTION
000-00-0000-000					12 MAY 19XX	DAILY-OPERATOR

7. APPLICABLE REFERENCE			
TM NUMBER	TM DATE	TM NUMBER	TM DATE

INSTRUCTIONS - Perform each check listed in the TM applicable to the inspection performed. Following the sequence listed in pertinent TM, complete form as follows.

COLUMN a - Enter TM item number.

COLUMN b - Enter the applicable condition status symbol.

COLUMN c - Enter deficiencies and shortcomings.

COLUMN d - Show corrective action for deficiency or shortcoming listed in Column c.

COLUMN e - Individual ascertaining completed corrective action initial in this column.

STATUS SYMBOLS

"X"—Indicates a deficiency in the equipment that places it in an inoperable status.

CIRCLED "X"—Indicates a deficiency, however, the equipment may be operated under specific limitations as directed by higher authority or as prescribed locally, until corrective action can be accomplished.

HORIZONTAL DASH "(-)"—Indicates that a required inspection, component replacement, maintenance operation check, or test flight is due but has not been accomplished, or an overdue MWO has not been accomplished.

DIAGONAL "(/)"—Indicates a materiel defect other than a deficiency which must be corrected to increase deficiency or to make the item completely serviceable.

LAST NAME INITIAL IN BLACK, BLUE-BLACK INK, OR PENCIL-Indicates that a completely satisfactory condition exists.

FOR AIRCRAFT-Status symbols will be recorded in red.

ALL INSPECTIONS AND EQUIPMENT CONDITIONS RECORDED ON THIS FORM HAVE BEEN DETERMINED IN ACCORDANCE WITH DIAGNOSTIC PROCEDURES AND STANDARDS IN THE TM CITED HEREON.

8a. SIGNATURE (Person(s) performing inspection)	8b. TIME	9a. SIGNATURE (Maintenance Supervisor)	9b. TIME	10. MAN HOURS REQ
John Doe	0900			

TM ITEM NO. a	STATUS b	DEFICIENCIES AND SHORTCOMINGS c	CORRECTIVE ACTION d	INITIAL WHEN CORRECTED e
1		PRESSER FOOT IS MISSING		
2		NEEDLE BAR IS BENT		

RECORD ON THIS FORM ONLY DEFICIENCIES THAT CANNOT BE CORRECTED AT YOUR LEVEL. SEE SAMPLE ENTRIES.

DA FORM 1 APR 79 2404 — Replaces edition of 1 Jan 64, which will be used

1

Figure 1204. Entries on DA Form 2404.

REFERENCES:

The performance measures give you all the information you need to know to complete this task. No additional references are required.

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■ 101-513-1205

ATTACH A HANDWORKED GROMMET TO A GP MEDIUM TENT OR TARPAULIN.

CONDITIONS: You are working in the canvas repair section of a canvas repair shop. Canvas items with missing grommets have been submitted for repair. Your supervisor has instructed you to attach a handworked grommet to a canvas item. This task is performed in garrison and simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: size 4 cutter, lead block, size 15 sailmakers needle, sewing palm, sewing cord, beeswax, rawhide mallet, trimmers, 3/4-inch grommet ring, shears, 12-inch ruler, wood fid, and a canvas item.

STANDARD: You must complete all performance measures in sequence, without error, within 45 minutes for one grommet. You must secure all stitches by tacking.

PERFORMANCE MEASURES:

1

1. Prepare the damaged item for sewing.

a. Position the 3/4-inch grommet ring on the canvas where it is to be stitched.

b. Mark with chalk around the outside and inside of the 3/4-inch grommet ring.

c. Position the canvas item on the lead block with the top side of the material face up.

d. Strike the size 4 cutter with the rawhide mallet, cutting a hole in the canvas on the inside mark. (See fig 1205.1.)

e. Center the grommet over the grommet hole.

f. Make equally spaced holes no larger than one-sixteenth of an inch in diameter one-eighth of an inch from the outer edge of the grommet. The holes will be used as guides for stitching.

2. Prepare the thread and needle for sewing.

a. Cut and wax 72 inches of thread.

b. Thread a sailmakers needle to make a four-strand thread. Tie knots at the ends.

c. Twist the four strands together to form one strand. Rewax the strand and cut off the knotted ends.

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Figure 1205.1. Cut a hole in the canvas.

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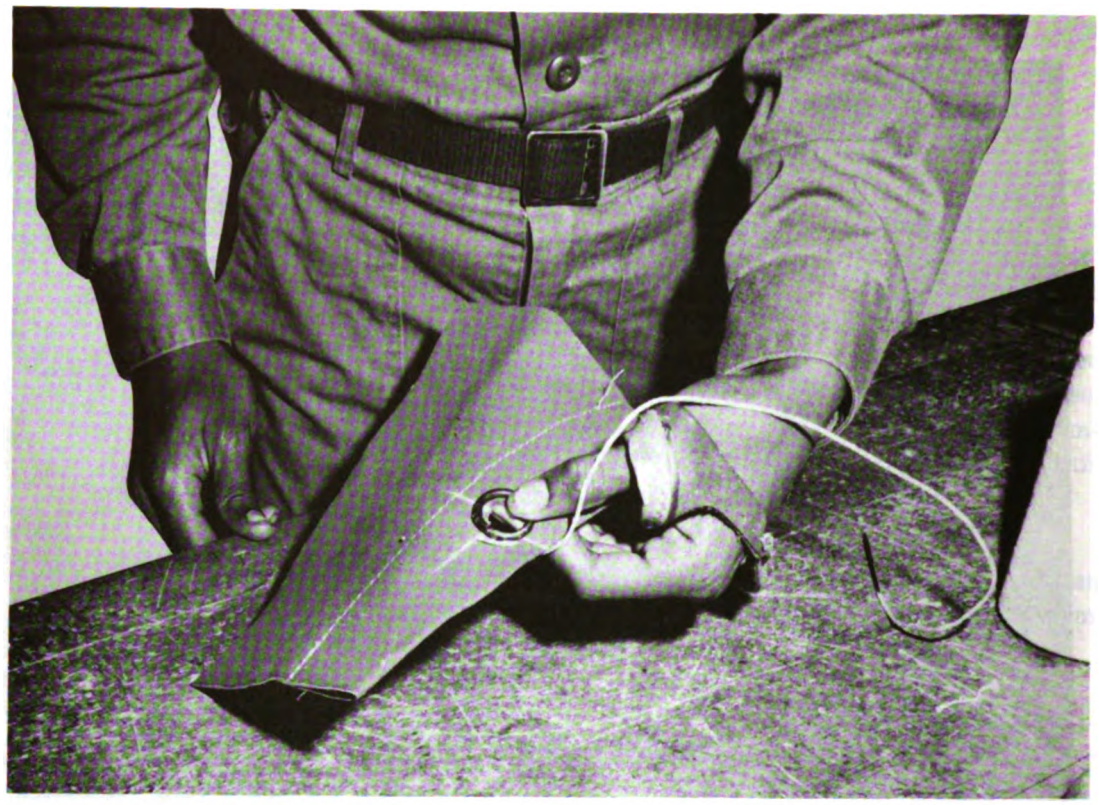

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Figure 1205.2 Handstitch the grommet in place.

3. Handstitch the grommet in place. (See fig 1205.2.)

a. Begin handworking the grommet by inserting the needle through the prepunched holes one-eighth of an inch from the outside edge of the ring.

b. Continue to sew by drawing the threads through the holes and around the grommet until a 1/2-inch end remains.

c. Lay the 1/2-inch end beside the ring. Secure the end of the thread along the outer edge of the grommet ring with a second stitch.

d. Handwork the grommet to the material with a round stitch, working clockwise around the grommet ring.

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e. Tack the hand sewing of the grommet by bringing the needle under the last three stitches along the outer edge of the grommet ring. Draw the thread tight. (See fig 1205.3.)

f. Flatten the stitching by inserting a wood fid or shelter half tent pin into the grommet hole, first from the front and then from the back.

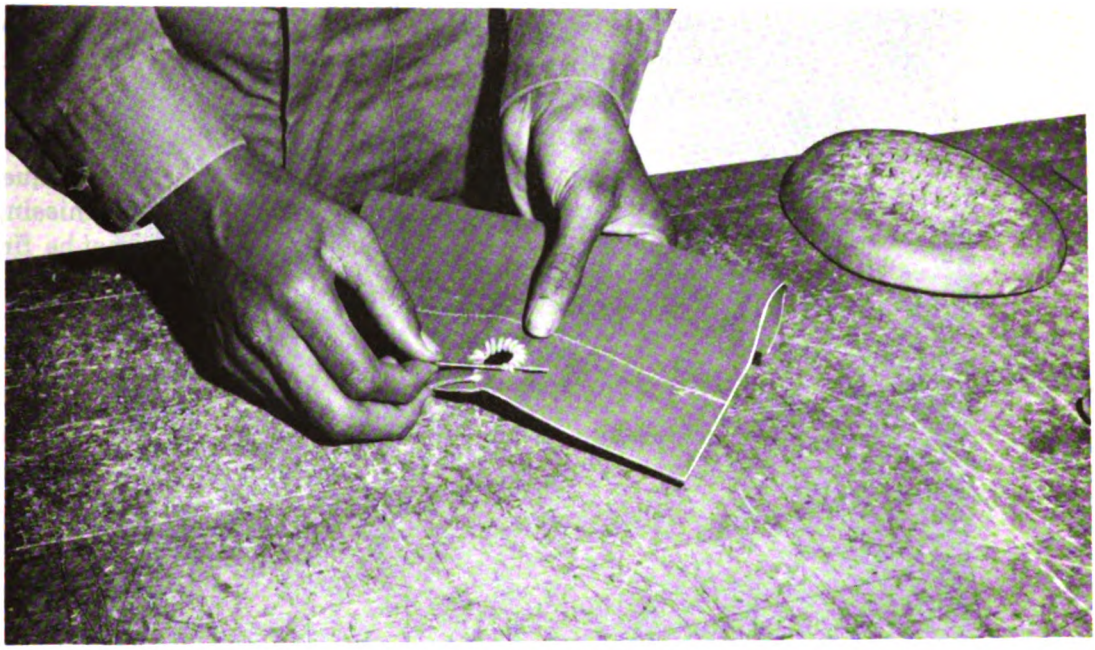

Figure 1205.3 Finish the stitching with sailmakers needles.

1

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1206

REPLACE MISSING OR DEFECTIVE GROMMETS ON CANVAS ITEMS WITH PUNCH AND DIE SET.

CONDITIONS: You are working in the canvas repair section of a canvas repair shop. Your supervisor has instructed you to replace missing or defective grommets on canvas items. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: one rawhide mallet, grommet and washer, wood or lead block, die set, and shelter half with a missing or defective grommet.

STANDARD: You must complete all performance measures in sequence, without error, within 15 minutes to replace one missing or defective grommet. The spurs on the grommet must be firmly clinched with the barreled edges.

PERFORMANCE MEASURES:

1

1. Select and prepare the grommet for installation.

a. Select a grommet one size larger for the item being repaired.

b. Select the appropriate tools and implements to install the grommet.

c. Cut a hole in the canvas using the appropriate size cutter. (See fig 1206.1.)

2. Install the grommet.

a. Insert the grommet into the hole in the material so that the flange of the barrel rests on the inside of the item being repaired. (See fig 1206.2.)

b. With material face up, place the barrel on the female die with the flange of the grommet resting on the die and the barrel facing upward. (See fig 1206.3.)

c. Place the washer of the grommet, spurs down, over the grommet barrel.

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Figure 1206.1. Cut a hole in the canvas.

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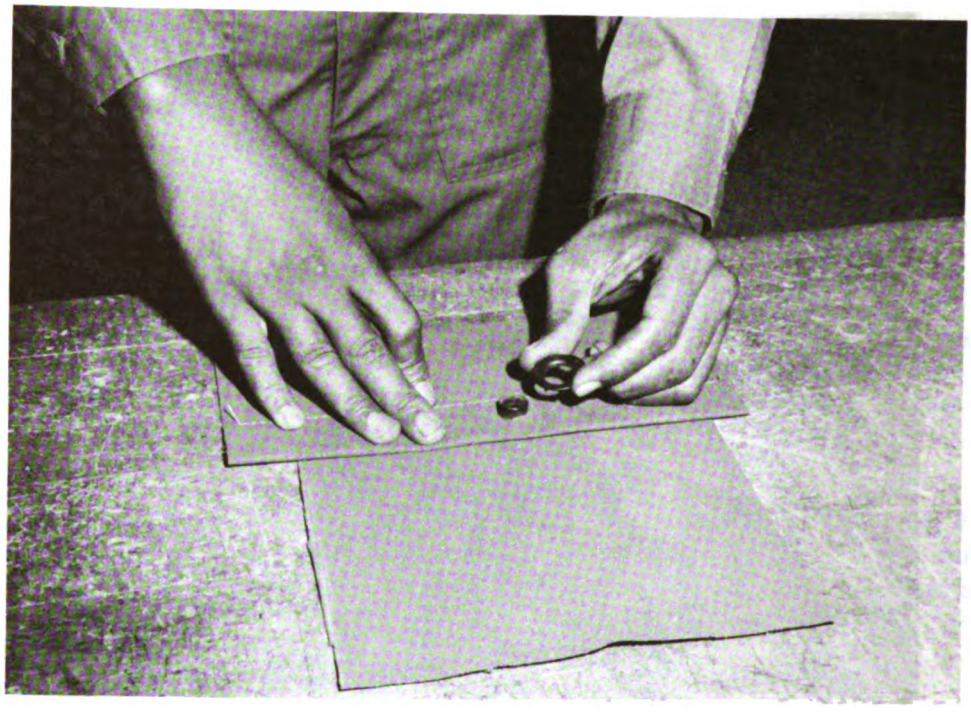

Figure 1206.2. Insert the grommet.

1

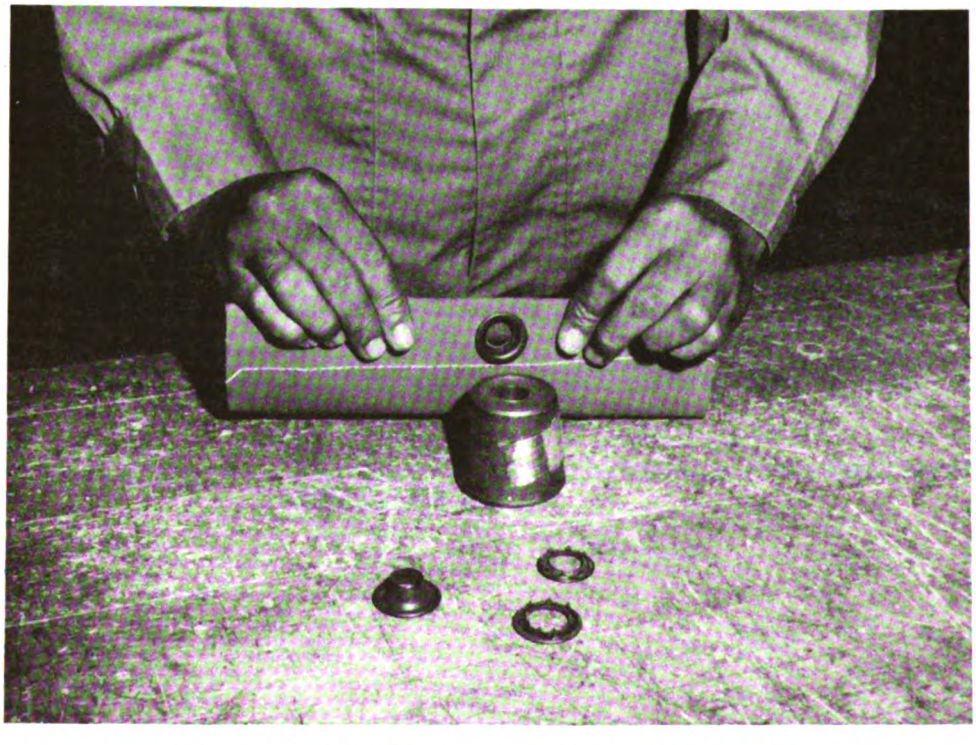

Figure 1206.3 Place the barrel on the female die.

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d. Insert the male die (punch) into the grommet barrel. (See fig 1206.4.)

e. Strike the male die (punch) with the rawhide mallet to clinch the grommet washer to the grommet barrel.

Figure 1206.4 Insert the male die into the grommet barrel.

1

REFERENCES:

The performance measures give you all the information you need to know to complete this task. No additional references are required.

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■ 101-513-1208

CONSTRUCT AND SEW SIMPLE TOP PATCHES.

CONDITIONS: You are working in the canvas repair seciton of a canvas repair shop. Canvas items with holes or tears have been submitted by a supported unit for repair. Your supervisor has instructed you to construct and sew simple top patches to repair splits or tears in canvas items. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: heavy-duty sewing machine, shears, chalk, ruler, patch material, one 2 1/2-ton truck cargo cover with a hole or tear.

STANDARD: You must complete all performance measures in sequence, without error, within 20 minutes, for each simple top patch. The patch must be centered over the damaged area. All edges must be folded under with no raw edges showing. Each stitch row must be finished by tacking.

PERFORMANCE MEASURES:

1

1. Measure and mark the damaged area.

   a. Measure from the edge of the damaged area two and three-fourths of an inch from all sides of the damage and mark with chalklines. (See A, fig 1208.)

   b. Connect the marked lines around the damaged area.

2. Prepare the patch material.

   a. Measure and mark with chalklines a piece of patch material the same size as the marked area to be patched.

   b. Cut out the patch.

   c. Fold the patch in half lengthwise. Crease the fold with the shears.

   d. Fold the patch again widthwise. Crease the fold with the shears.

   e. Lay the patch out flat.

   f. Measure and mark chalkline three-fourths of an inch from all raw edges of the patch.

   g. Fold the edges under on the patch on the chalklines.

3. Repair the damaged area on the item.

   a. Measure one inch from each end of the hole or tear and mark with chalklines.

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b. Measure and mark with chalklines one-half inch above and below the damaged area.

c. Place item under presser foot of sewing machine.

d. Zigzag stitch the damaged area between the 1-inch and 1/2-inch chalklines. (See B, fig 1208.)

4. Position and sew the patch over the damaged area using the heavy-duty sewing machine.

a. Place the prepared patch over the damaged area. (See C, fig 1208.)

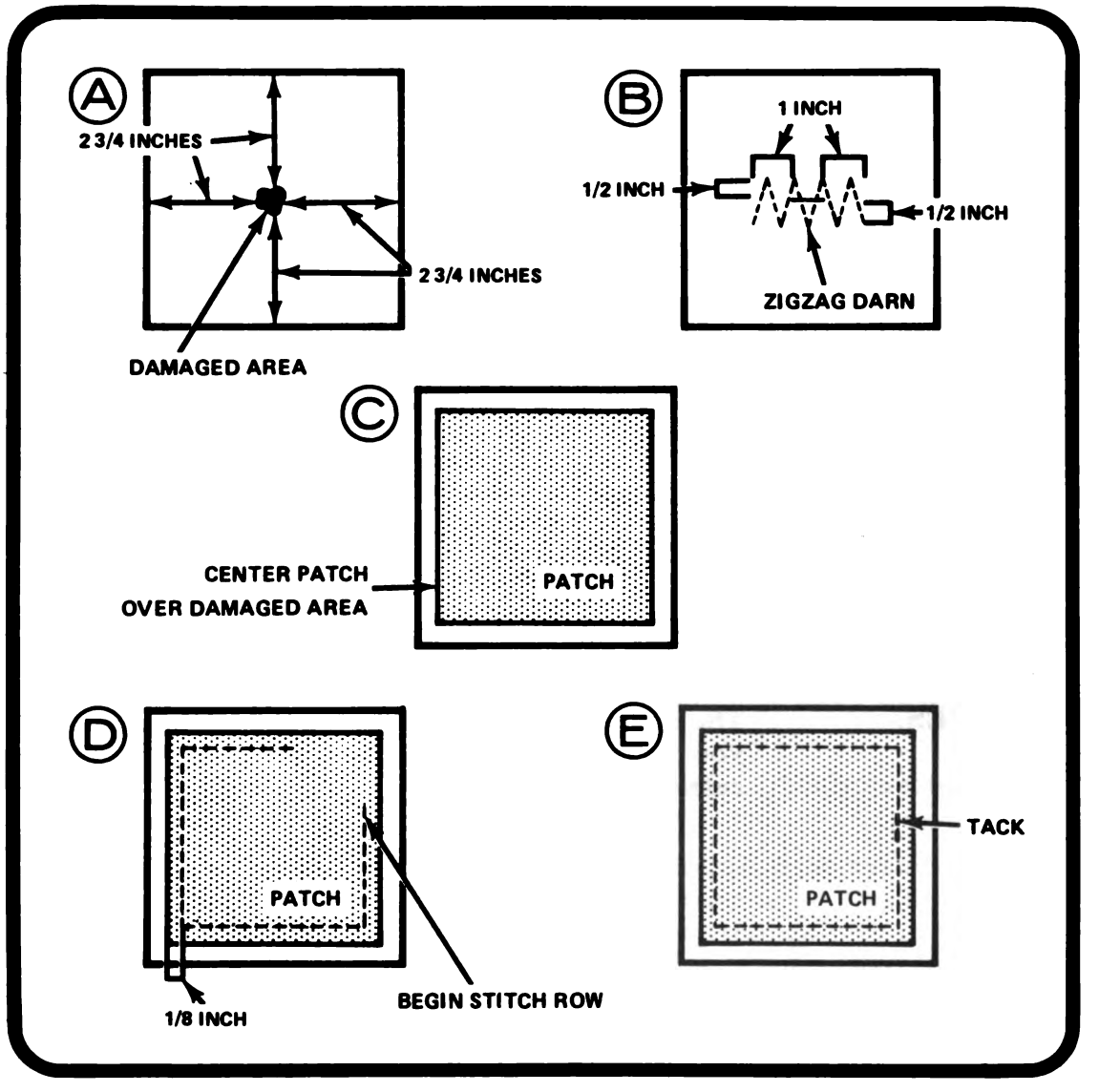

Figure 1208. Steps in constructing and sewing a simple top patch.

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b. Align the patch so that it is centered over the damaged area and has a 2-inch overlap on all sides.

c. Hold the patch over the damaged area, and place both the patch and item under the presser foot of the machine.

d. Insert the needle one-eighth of an inch from the edge and midway between the right corners of the patch.

e. Sew a stitch row one-eighth of an inch from the folded edge of the patch. (See D, fig 1208.)

f. Finish the stitch row with a tack that overlaps the beginning of the stitch row by one inch. (See E, fig 1208.)

5. Construct the felled top patches.

a. If the tear is not practical to zigzag stitch, cut away the damaged area and make a felled patch. The felled top patch differs from the simple top patch only in the manner of finishing. After stitching the patch in place from the top side, turn the material over.

b. Measure and mark 1 inch all around from the stitch row.

c. Cut out damaged area to the 1-inch mark and measure and mark from the 1-inch mark 1/2-inch all around, then notch the corners to the 1/2-inch line.

1

d. Fold under 1/2-inch around the inside of the patch and measure and mark 1/8-inch for the stitch line from the felled or folded edges.

e. Sew a stitch row 1/8-inch all around the folded edge of the inside of the patch.

f. Finish the stitch row with a 1-inch tack by overlapping the beginning of the stitch row.

REFERENCES:

The performance measures give you all the information you need to know to complete this task. No additional references are required.

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■ 101-513-1209

CONSTRUCT AND SEW WATERSHED PATCHES TO REPAIR HOLES, TEARS, AND CUTS IN CANVAS ITEMS.

CONDITIONS: You are working in the canvas repair section of a canvas repair shop. A supported unit has submitted canvas items with holes, tears, and cuts. Your supervisor has instructed you to construct and sew watershed patches to repair holes, tears, and cuts in canvas items. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: heavy-duty sewing machine, patch material, shears, chalk, ruler, worktable, and one GP medium tent with a hole.

STANDARD: You must complete all performance measures in sequence, without error, within 40 minutes, for each watershed patch. The patch must be centered over the damaged area. There must be no loose or skipped stitches. The patch must be free of puckers and be secured with two stitch rows.

PERFORMANCE MEASURES:

1. Prepare the damaged area. (See A, fig 1209.1.)

   a. Using the ruler and chalk, measure and mark two and three-fourths of an inch from all sides of the tear. 1

   b. Connect the chalklines around the tear and measure the length and width.

2. Select the material and prepare the patch.

   a. Select the patch material and cut a patch using the measurements in performance measure **1b.**

   b. Fold the patch in half lengthwise. Crease the folded edge with the shears. (See B, fig 1209.1)

   c. Open the patch. Fold the top left-hand corner to the center crease line. (See C, fig 1209.1.)

   d. Fold top right-hand corner to the center crease line. Align it squarely with the left-hand corner. (See D, fig 1209.1.) The corners folded down form a triangle with 45 degree angles at the outer corners.

   e. Lift the inner corners of each triangle and fold them back to the first fold line to form 22 1/2 degree angles. (See E, fig 1209.1)

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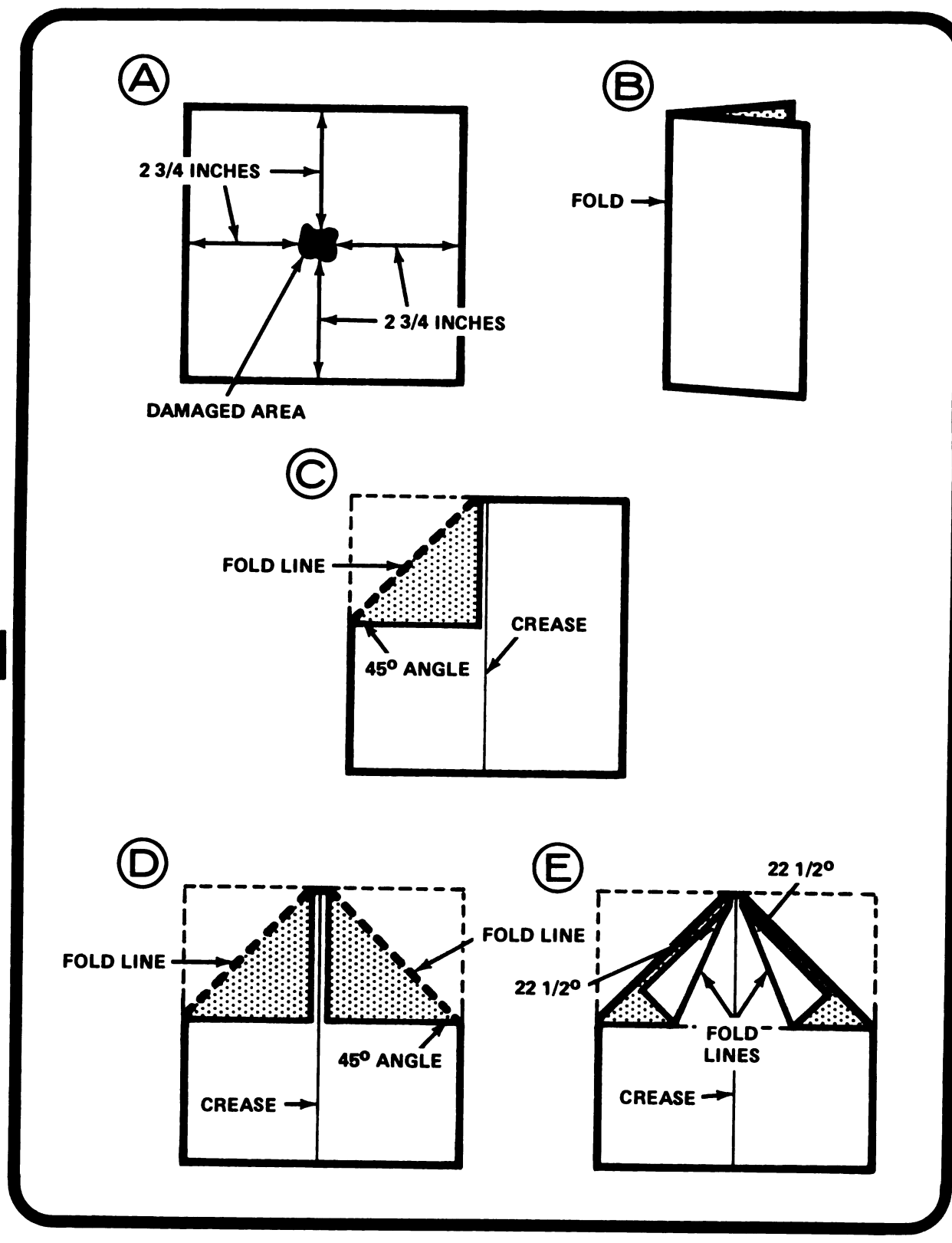

Figure 1209.1. Measure and fold the patch.

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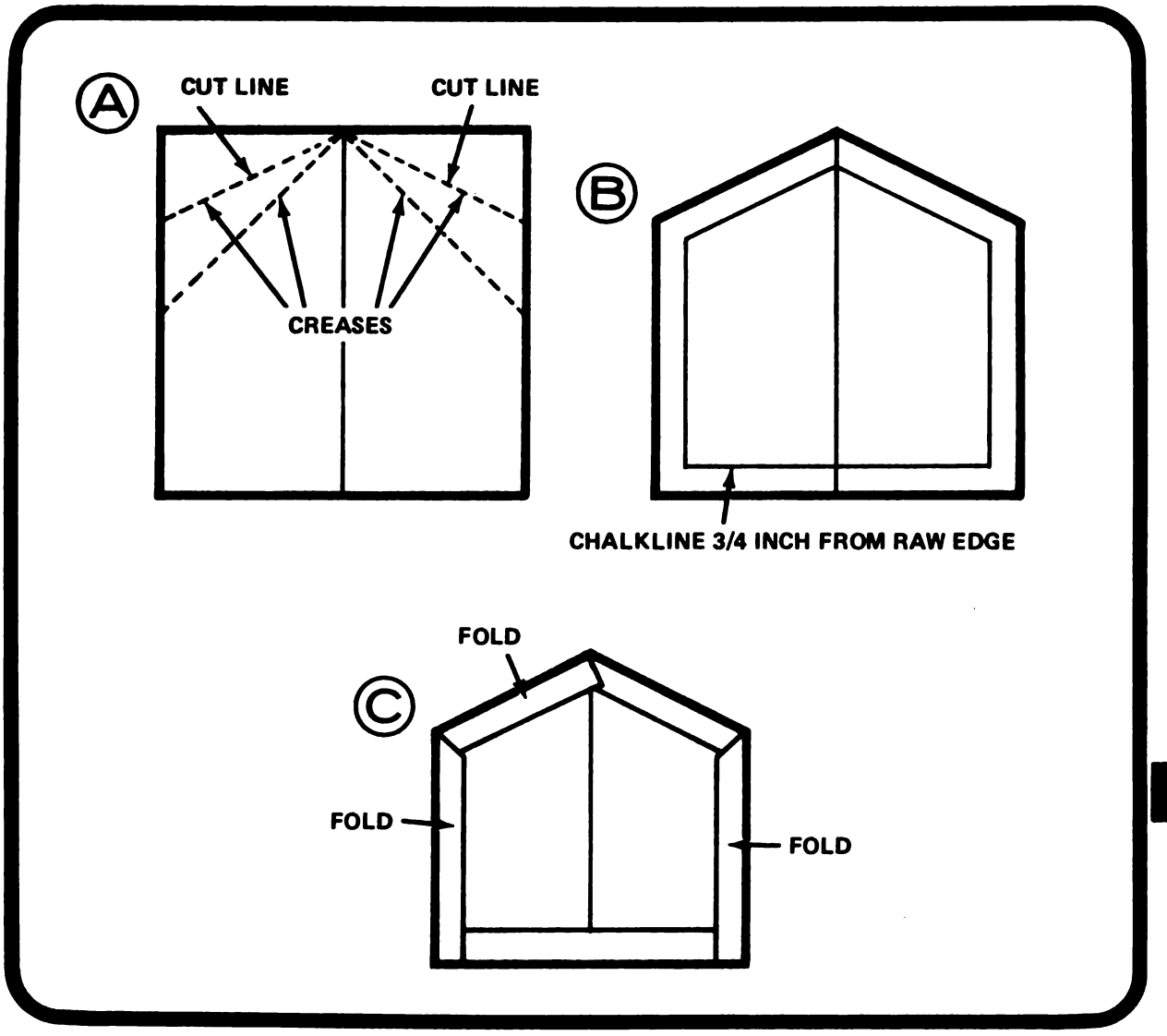

Figure 1209.2. Prepare the patch for sewing.

f. Unfold the patch and cut off the corners along the fold lines nearest each corner. (See A, fig 1209.2.)

g. Measure and mark a chalkline that is three-fourths of an inch from each raw edge of the patch. (See B, fig 1209.2.)

h. Fold under all sides of the patch on the chalklines. (See C, fig 1209.2.) Fold the bottom first, the sides next, and then the top.

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3. Position and sew the patch over the damaged area using the heavy-duty sewing machine.

a. Place the item to be patched in the sewing machine.

b. Align the patch so that it is centered over the damaged area and has a 2-inch overlap on all sides. The top of the patch must face the top of the tent.

c. Insert the needle one-eighth of an inch from the folded edge and midway up the right side of the patch.

d. Sew completely around the patch.

e. Finish the stitch row with a 1-inch overlap at the beginning to form a tack.

f. Start a second stitch row three-eighths to one-half of an inch inside the first stitch row.

g. Maintain this distance and sew completely around the patch. Tack with a 1-inch overlap.

4. Finish the patch.

a. Turn the repaired item over.

b. Cut out the damaged area one-eighth of an inch from the inside row of stitches.

1

REFERENCES:

The performance measures give you all the information you need to know to complete this task. No additional references are required.

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■ 101-513-1210

CONSTRUCT AN OVERSEAM PATCH AND APPLY IT OVER A HOLE OR A TEAR IN THE SEAM OF A CANVAS ITEM

CONDITIONS: You are working in the canvas repair section of a canvas repair shop. A canvas item with a hole or tear in one of its seams has been submitted for repair by a supported unit. Your supervisor has instructed you to construct an overseam patch and apply it over a hole or tear in the seam of a canvas item. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: heavy-duty sewing machine, patch material of the same color and texture as item being repaired, chalk, 36-inch ruler, shears, knife, and a GP medium tent with a damaged seam.

STANDARD: You must complete all performance measures in sequence, without error, within 50 minutes, for one patch. The seam must have a double thickness of material. The top panel must be placed over the bottom panel. Seams must be aligned with the original stitch line. There must be no skipped stitches, raw edges, or puckers. Each stitch row must be finished by tacking.

1

PERFORMANCE MEASURES:

1. Use a knife to open the seam six inches above and below the damaged area.

2. Measure and cut the patch material.

   a. Using the ruler and chalk, measure and mark two and three-fourths of an inch from all sides of the tear. (See A, fig 1210.1.)

   b. Connect the marked lines around the damaged area.

   c. Measure the length and width of the chalklines to determine the patch size.

   d. Cut out the patch from the patch material.

3. Prepare the patch for sewing.

   a. Fold the patch in half lengthwise. Crease the folded edge. (See B, fig 1210.1.)

   b. Open the fold. Fold the top left-hand corner to the center crease line. (See C, fig 1210.1.)

   c. Fold the top right-hand corner to the center crease line. The corners folded down form triangles with 45 degree angles at the outer corners. (See D, fig 1210.1.)

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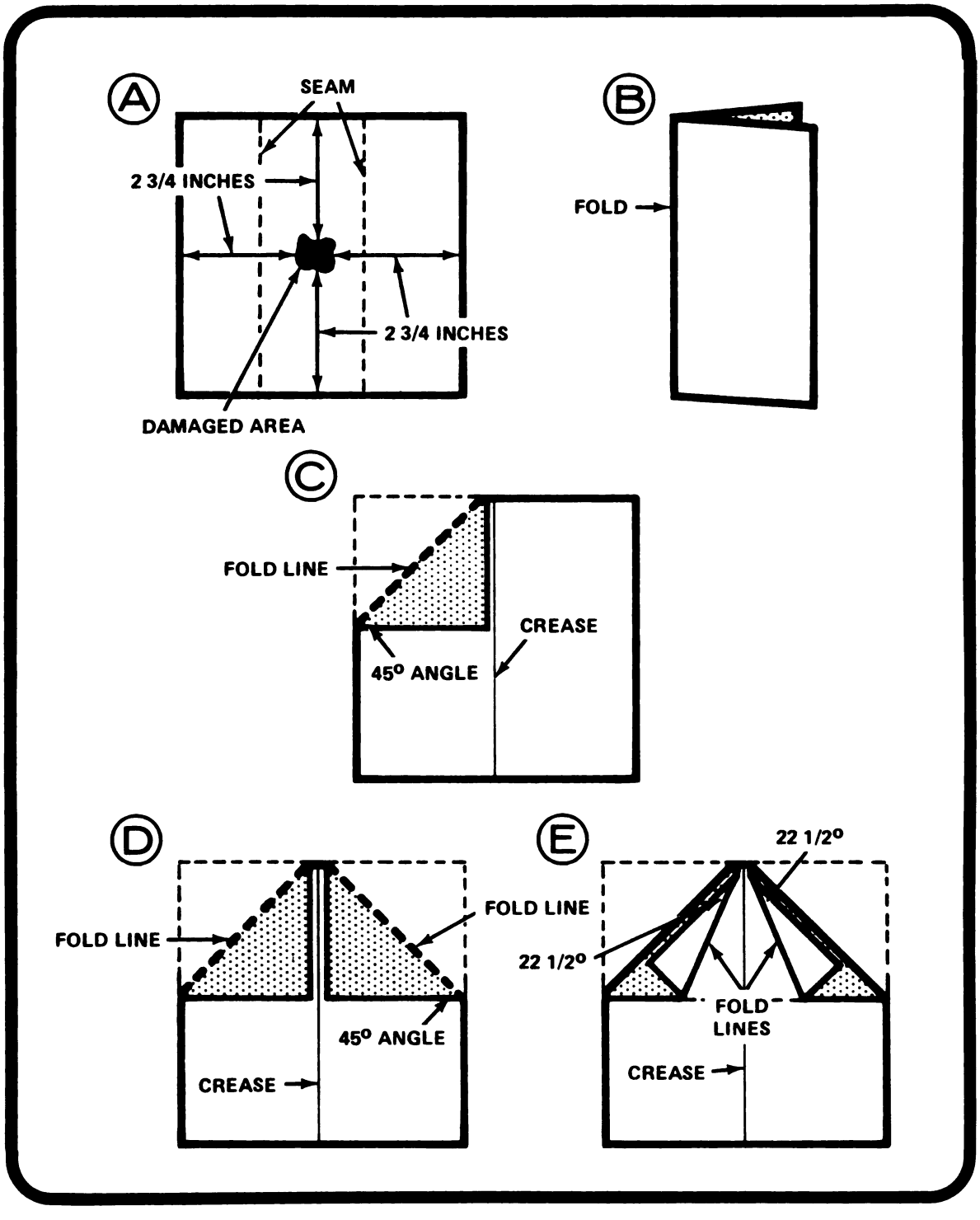

Figure 1210.1. Measure and fold the patch.

d. Lift the inner corner of each triangle and fold it back to the first fold line to form 22 1/2 degree angles. (See E, fig 1210.1.)

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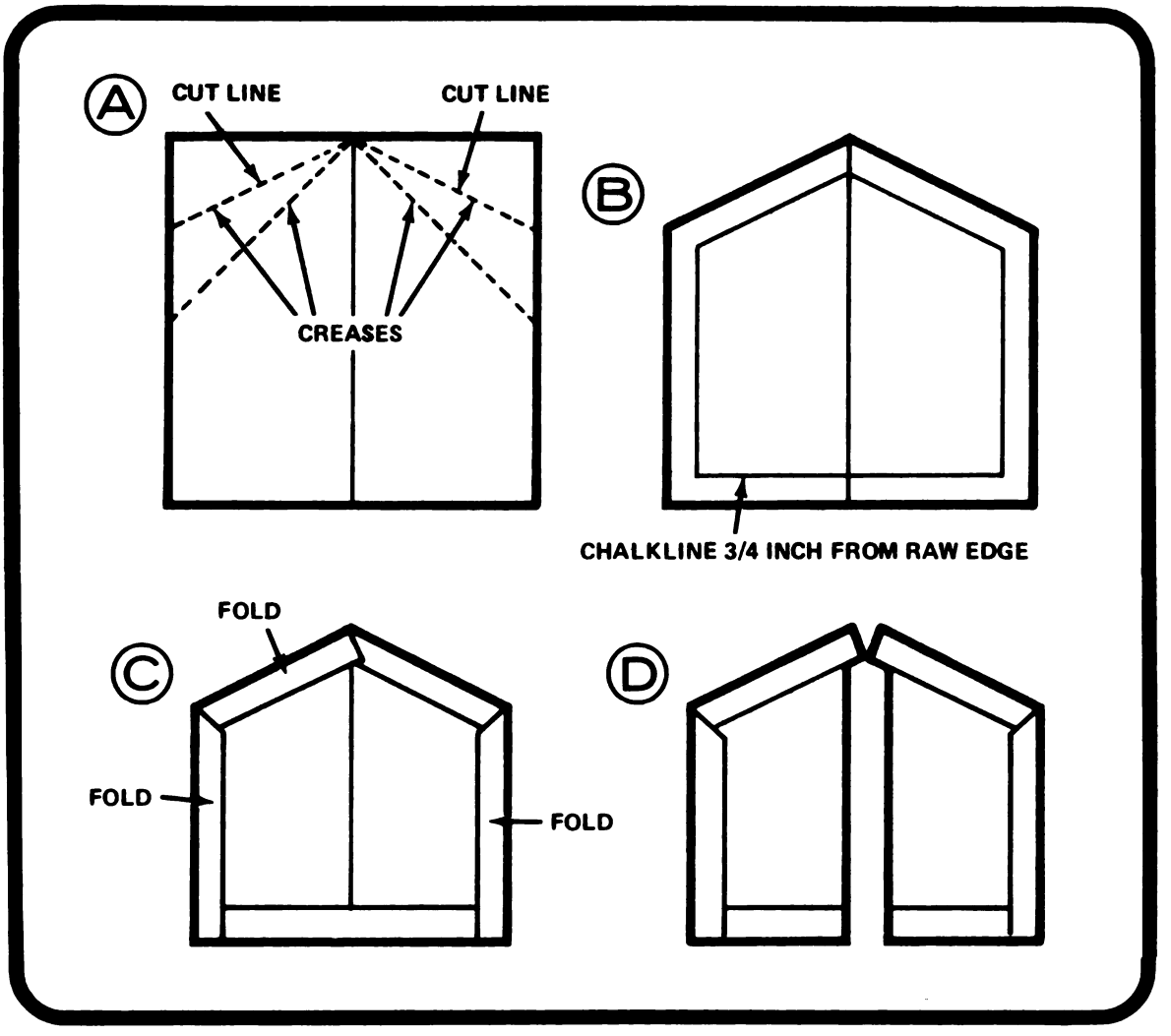

Figure 1210.2. Prepare the patch for sewing.

e. Unfold the patch and cut off the corners along the fold line nearest each corner. (See A, fig 1210.2.)

f. Measure and mark a chalkline that is three-fourths of an inch from each raw edge of the patch. (See B, fig 1210.2.)

g. Fold all sides of the patch on the chalklines. Fold the bottom first, the sides next, and then the top. (See C, fig 1210.2.)

h. Cut the patch in half on the center crease line. (See D, fig 1210.2.) You now have two patches.

4. Position and sew the patches in place using the heavy-duty sewing machine.

a. Place one patch on the bottom ply of the seam so the raw edges are together and even. The folded edges must be under the patch.

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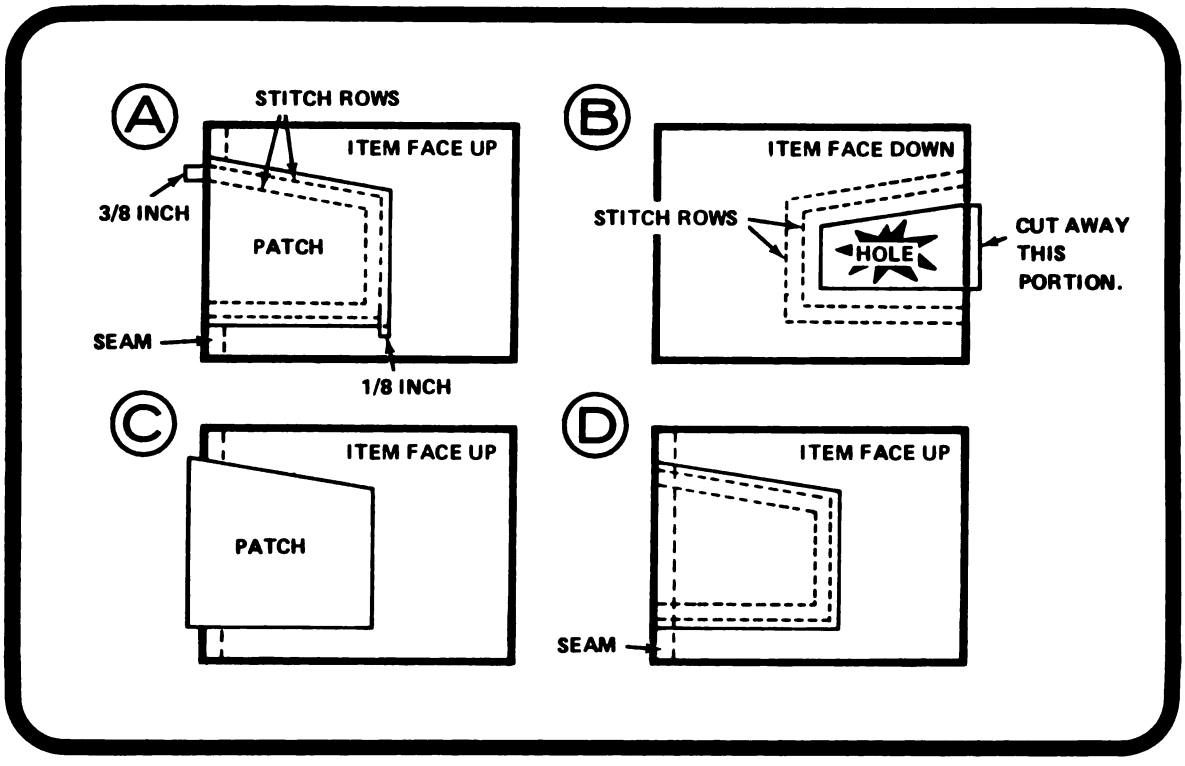

Figure 1210.3. Sew the patch.

1

b. Mark a chalkline one-eighth of an inch from the folded edges. Stitch along the chalkline.

c. Sew a second stitch row three-eighths of an inch to one-half inch inside the first stitch row. (See A, fig 1210.3.)

d. Turn the item over and cut away the damaged area one-eighth of an inch from the edge of the inside row of stitching. (See B, fig 1210.3.)

e. Place the second patch over the top ply seam. Extend the patch one seam width beyond the seam. (See C, fig 1210.3.)

f. Stitch the patch over the damaged area. Cut away the damaged area to within one-eighth inch from the edge of the inside row of stitches. (Follow the steps covered in b, c, and d above.)

g. Complete the overseam patch by folding under the extended edge of the top ply patch. (Make sure the edge is even with the original seam). Restitch the seams. (See D, fig 1210.3.) Make certain that all stitch lines are evenly spaced and aligned with the original stitch rows. Secure all stitch rows with a 1-inch tack at the beginning and end of each stitch row.

REFERENCES:

The performance measures give you all the information you need to know to complete this task. No additional references are required.

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■ 101-513-1211

CONSTRUCT AND SEW A REINFORCED GROMMET PATCH TO REPAIR A TORN OUT GROMMET PATCH ON A CANVAS ITEM

CONDITIONS: You are working in the canvas repair section of a canvas repair shop. A canvas item with a torn out corner grommet has been submitted by a supported unit for repair. Your supervisor has instructed you to construct and sew a reinforced grommet patch to repair a torn out grommet on a canvas item. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: tarpaulin with a torn out grommet patch, heavy-duty sewing machine, 12-inch ruler, chalk, shears, canvas patch material.

STANDARD: You must complete all performance measures, in sequence, within 25 minutes, without error, to construct and sew a reinforced grommet patch to repair a torn out grommet on a canvas item. The top patch must be squarely over the bottom patch. The reinforced grommet patch must consist of three plies of material.

PERFORMANCE MEASURES:

1

1. Prepare the damaged area.

   a. Cut out the damaged area. (See A, fig 1211.1)

   b. Measure the length and width of the section you cut out. (See B, fig 1211.1.)

2. Cut and prepare the patch materials.

   a. Cut two pieces that are four inches wider and two inches longer than the damaged area you cut out.

   b. Measure and mark a chalkline that is one-half inch from the raw edges on all sides of both pieces.

   c. Cut a piece of material that is the same size as the damaged area. This will be the center ply material.

3. Position and sew the reinforced grommet patch.

   a. Position one piece of the patch material with the smooth surface down and centered under the damaged area.

   b. Sew a stitch row down the side and across the bottom of the folded edges of the patch. (See C, fig 1211.1.)

   c. Turn the item over so the smooth surface is up.

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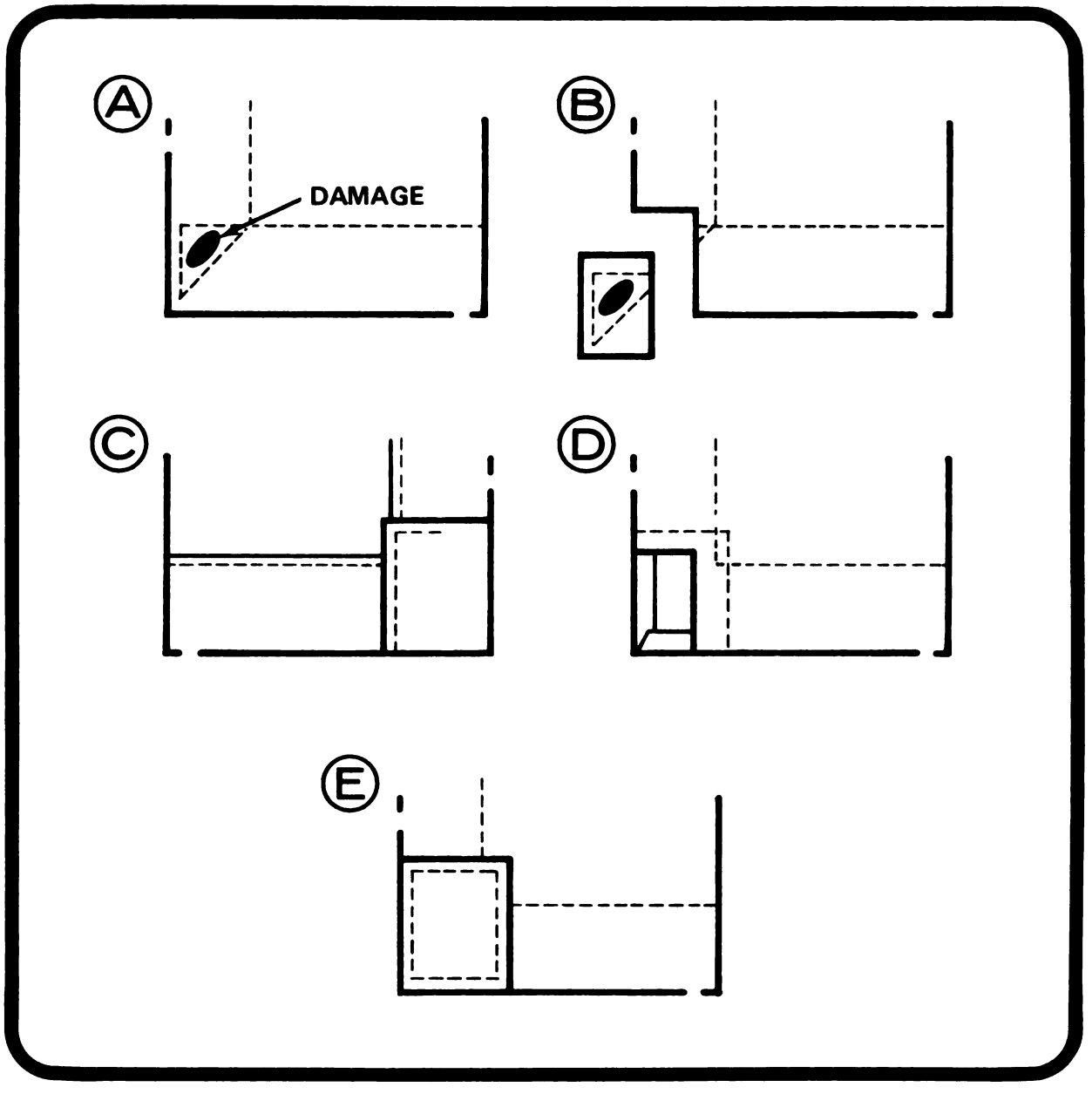

Figure 1211.1. Construct and sew a reinforced grommet patch.

d. Insert the center ply material over the patch material. (See D, fig 1211.1.) Be sure the center ply material is aligned with the folded edge of the patch.

e. Position the top side of the patch over the center ply material.

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f. Stitch one-eighth inch from the folded edge on all sides of the patch material. Finish the stitch row with a 1-inch tack. (See E, fig 1211.1.)

REFERENCES:

The performance measures give you all the information you need to know to complete this task. No additional references are required.

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■ 101-513-1212

CONSTRUCT AND SEW AN EAVE GROMMET PATCH.

CONDITIONS: You are working in a canvas repair shop. A supported unit has submitted for repair a GP medium tent with torn out eave grommets. Your supervisor has instructed you to construct and sew an eave grommet patch on a canvas item. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: a GP medium tent; patch material of the same color and texture as the tent; chalk; ruler; shears; and a heavy-duty sewing machine.

STANDARD: You must complete all performance measures in sequence, without error, within 25 minutes, for one eave grommet patch. The patch must consist of four plies of material and be centered over the damaged area. All stitch rows must be secured with a tack. There must be no runoff stitches.

PERFORMANCE MEASURES:

1

1. Measure, mark, and cut the patch material.

a. Measure the width of the hem on the eave. Make the length of the patch four times the width of the hem. (See A, fig 1212.1.)

b. Measure and mark 2 1/2 inches from the edge of both sides of the damaged area. This will determine the width of the patch material. (See B, fig 1212.1.)

c. Cut out the patch using the measurements in a and b above.

2. Prepare the patch.

a. Measure in one-half of an inch on the two long sides of the patch, and mark with chalk. (See A, fig 1212.2.)

b. Fold under the raw edges on the 1/2-inch marks. (See B, fig 1212.2.)

c. Mark a chalkline in the center of the material. (See C, fig 1212.2) Measure and mark one-eighth of an inch above and below the center line, also.

d. Fold each end of the patch toward the center so that the two ends meet on the 1/8-inch chalklines. (See D, fig 1212.2.)

NOTE: *When the patch material is folded, it will cover the damaged area with four layers of material. Two layers will be against the face, and two will be against the inside of the damaged area.*

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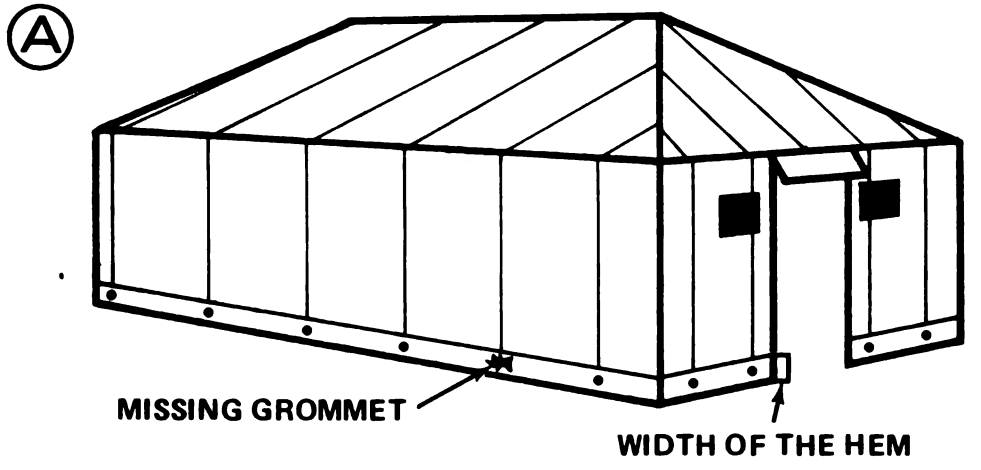

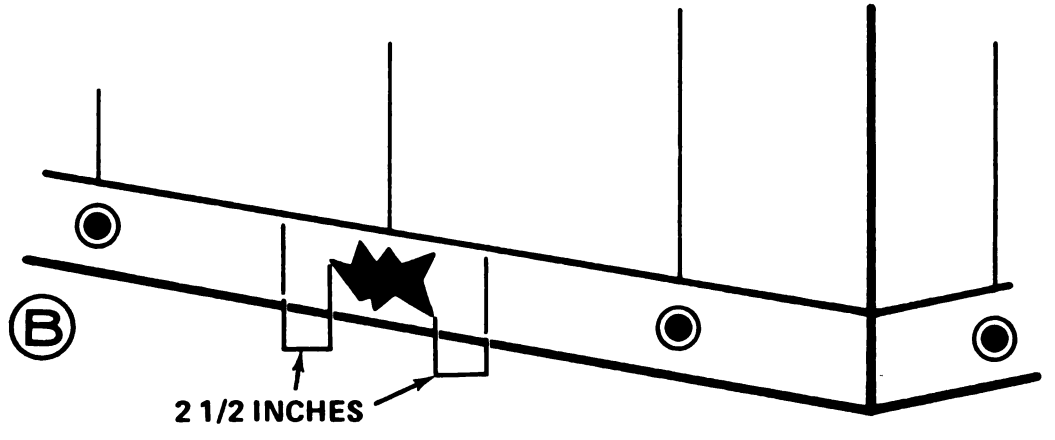

A. The length of the patch will be four times the width of the hem on the eave.

B. To determine the width of the patch, measure 2 1/2 inches from the edge of the damaged area on both sides.

Figure 1212.1. Determine the length and width of the patch.

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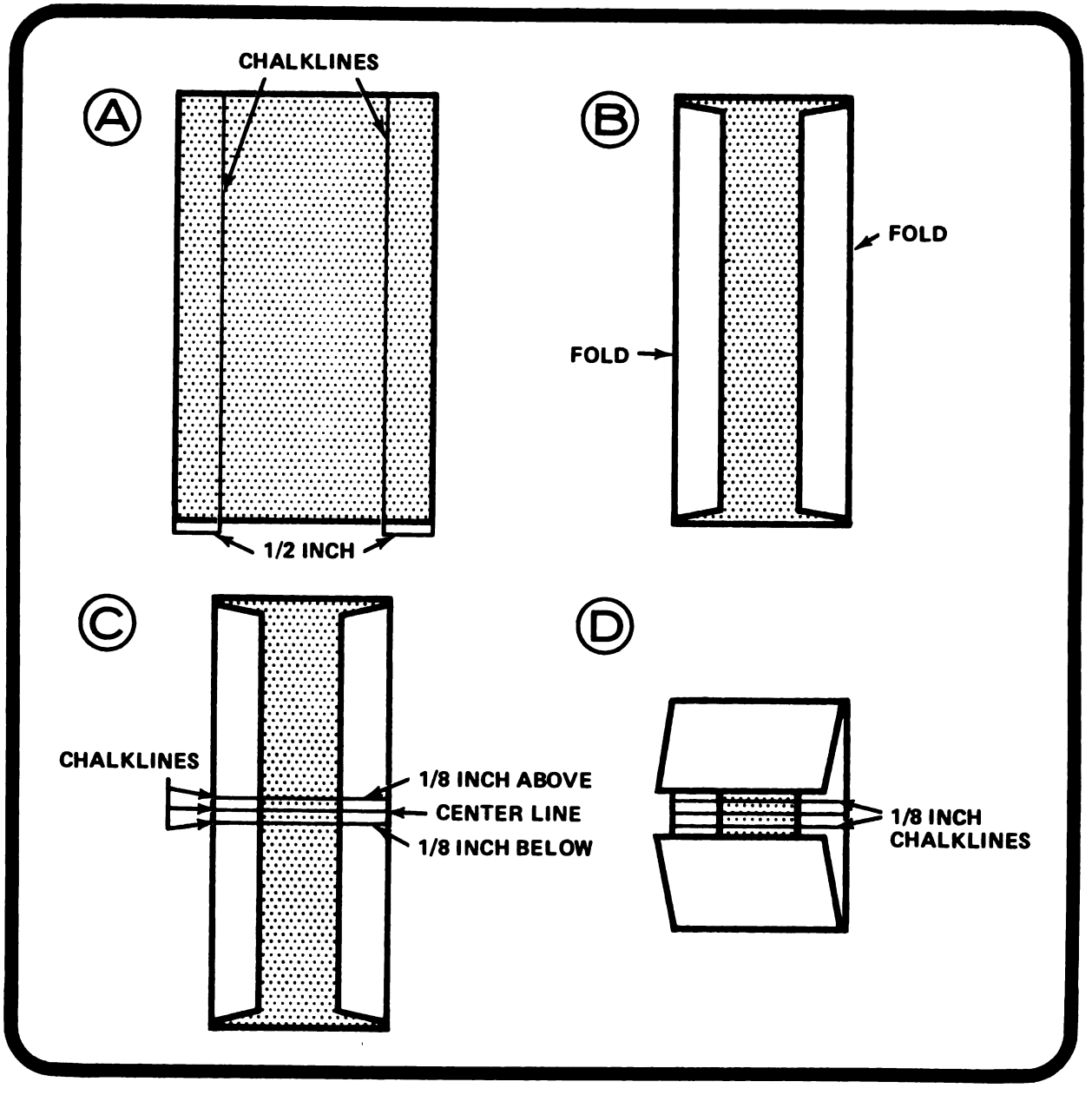

Figure1212.2. Prepare the patch.

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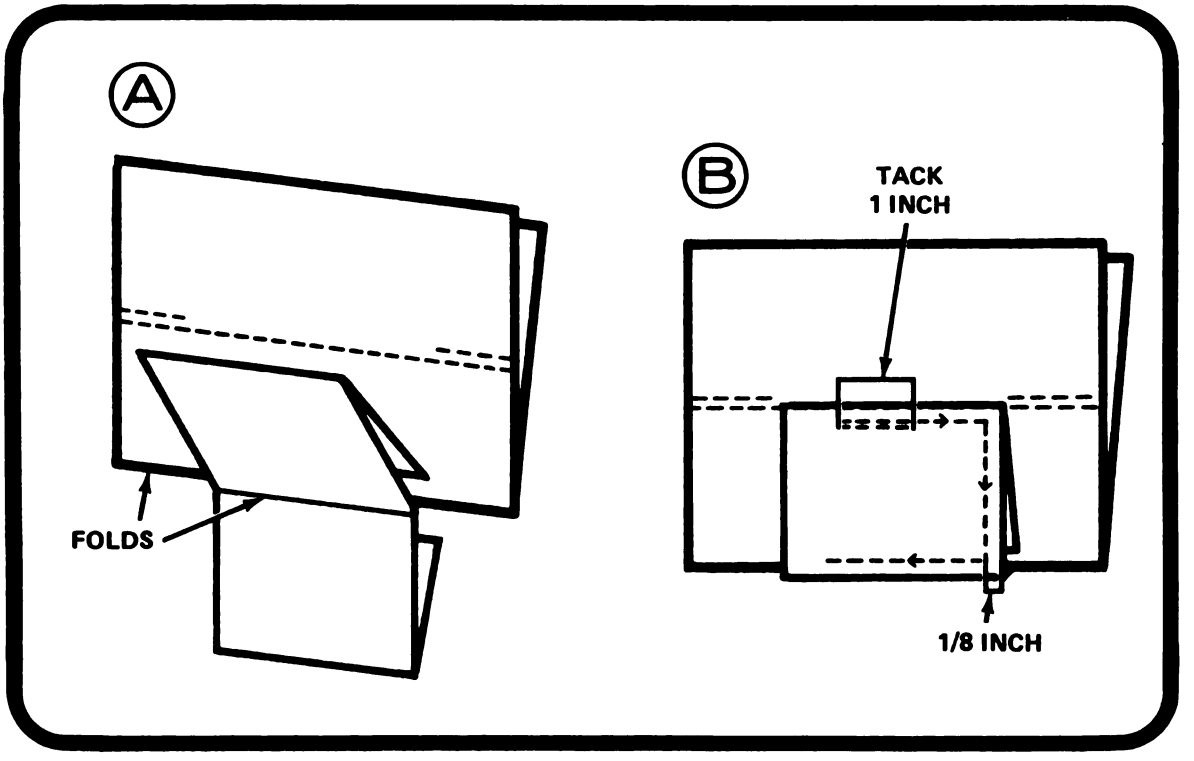

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Figure 1212.3. Position and sew the patch.

3. Position and sew the patch in place.

a. Place the patch over the eave so that the center fold of the patch covers the fold of the eave. The patch must be centered over the damaged area. (See A, fig 1212.3.)

b. Begin a stitch row one-eighth of an inch from the edge of the patch. Stitch through all plies of the material and completely around the patch. Make a 1-inch tack to secure the stitch row. (See B, fig 1212.3.)

REFERENCES:

The performance measures give you all the information you need to know to complete this task. No additional references are required.

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■ 101-513-1213

CONSTRUCT AND SEW A SEAM-TO-SEAM PATCH.

CONDITIONS: You are working in the canvas repair section of a canvas repair shop. A supported unit has submitted for repair canvas items with extensive damage between the seams. Your supervisor has instructed you to construct and sew a seam-to-seam patch on a canvas item. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: heavy-duty sewing machine, one GP medium tent with extensive damage between the seams, knife, shears, chalk, ruler, and patch material.

STANDARD: You must complete all performance measures in sequence, within 1 hour, without error, for one patch. The patch must be of a shingle-type shape when completed. All seams must be replaced using the original seam marks. All seams must be overlapped, left to right. Stitch rows on the panels must be tacked.

PERFORMANCE MEASURES:

1

1. Prepare the item for sewing.

a. Measure and mark a chalkline two inches above and below the damage. These will be your cutting lines. (See A, fig 1213.1.)

b. Measure and mark a chalkline one-half inch above the top cutting line.

c. Measure and mark a chalkline one inch below the bottom cutting line. (See B, fig 1213.1.)

d. Open the seams with a knife or single-edge razor blade 4 1/2 inches above and below on both sides of the damaged area. (See C, fig 1213.1.)

e. Using the shears, cut out the material along the cutting lines on the damaged panel. (See D, fig 1213.1.)

2. Measure, mark and cut the patch.

a. Measure the length of the damaged area and add 7 inches to the length. This will be the length of the patch. *(For example, if the damaged area is 3 inches long, you will need a 10-inch patch.)*

b. Measure the width of the seam. This will be your patch width.

c. Cut the patch out using the measurements above.

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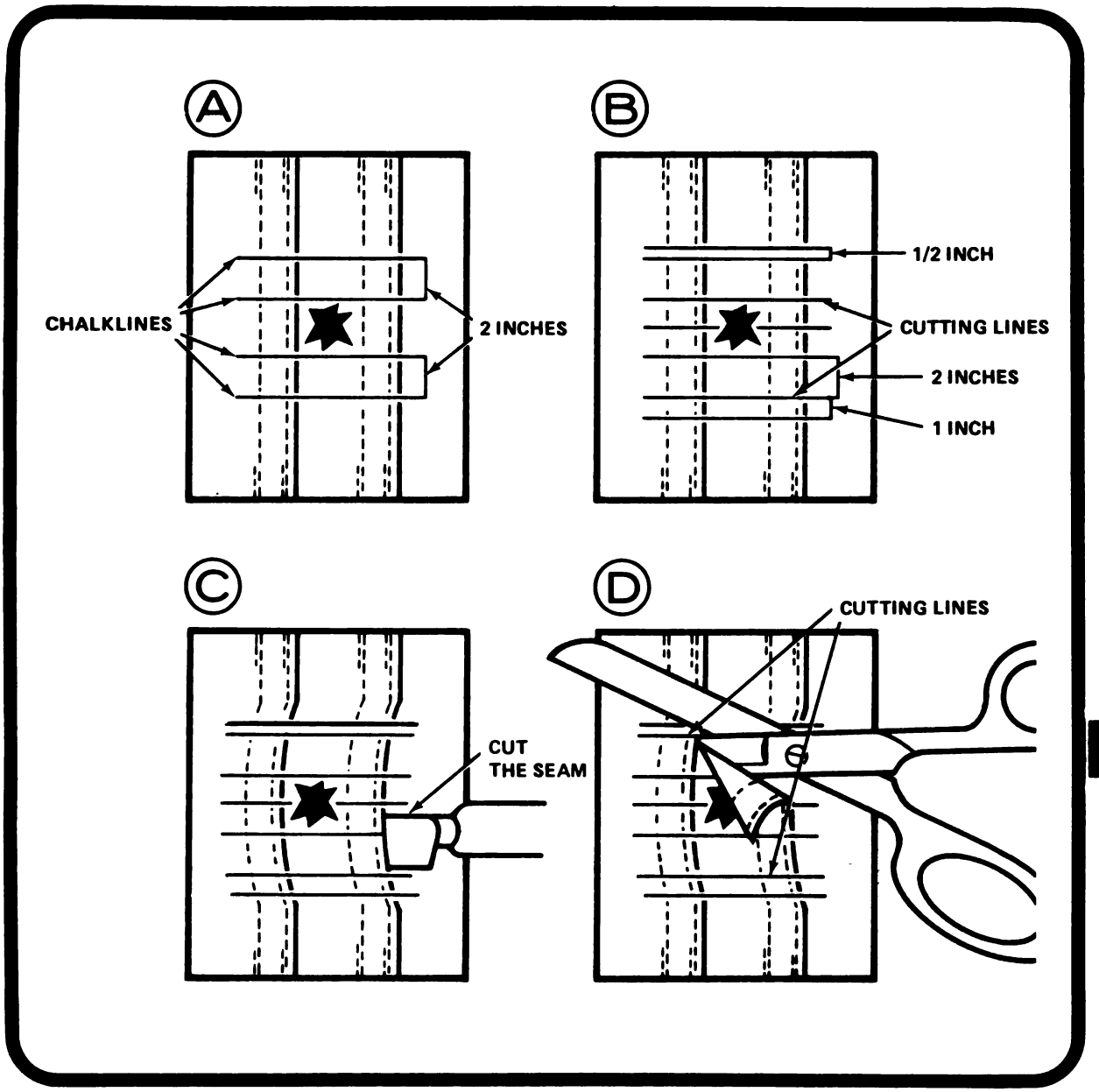

Figure 1213.1. Prepare the area to be patched.

d. With the patch face up, measure and mark (See A, fig 1213.2.)

(1) one inch from the left side

(2) one inch down from the top

(3) one-half inch up from the bottom.

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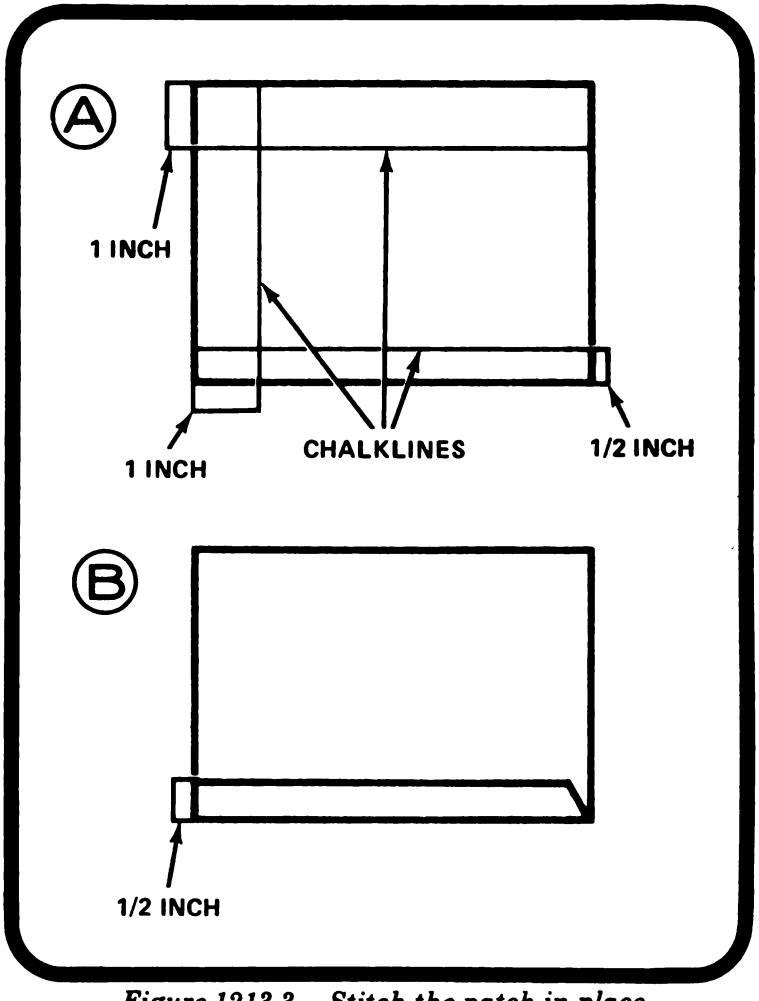

Figure 1213.3. Stitch the patch in place.

e. Fold the patch on the one-half inch chalkline. (See B, fig 1213.2.)

3. Position and sew the patch over the damaged area.

a. On the tent, fold the top panel under on the 1-inch mark.

b. Place the patch under the top folded panel. Aline the fold line of the panel with the 1-inch mark on the top of the patch and the left side of the patch even with the left seam.

c. Place the bottom of the patch in line with the 1-inch mark on the tent.

d. Make sure the patch is aligned with the 1-inch mark on the bottom panel. (See A, fig 1213.3.)

e. Keeping the patch aligned, place the top panel under the presser foot. Insert the needle one-eighth inch from the folded edge of the top panel.

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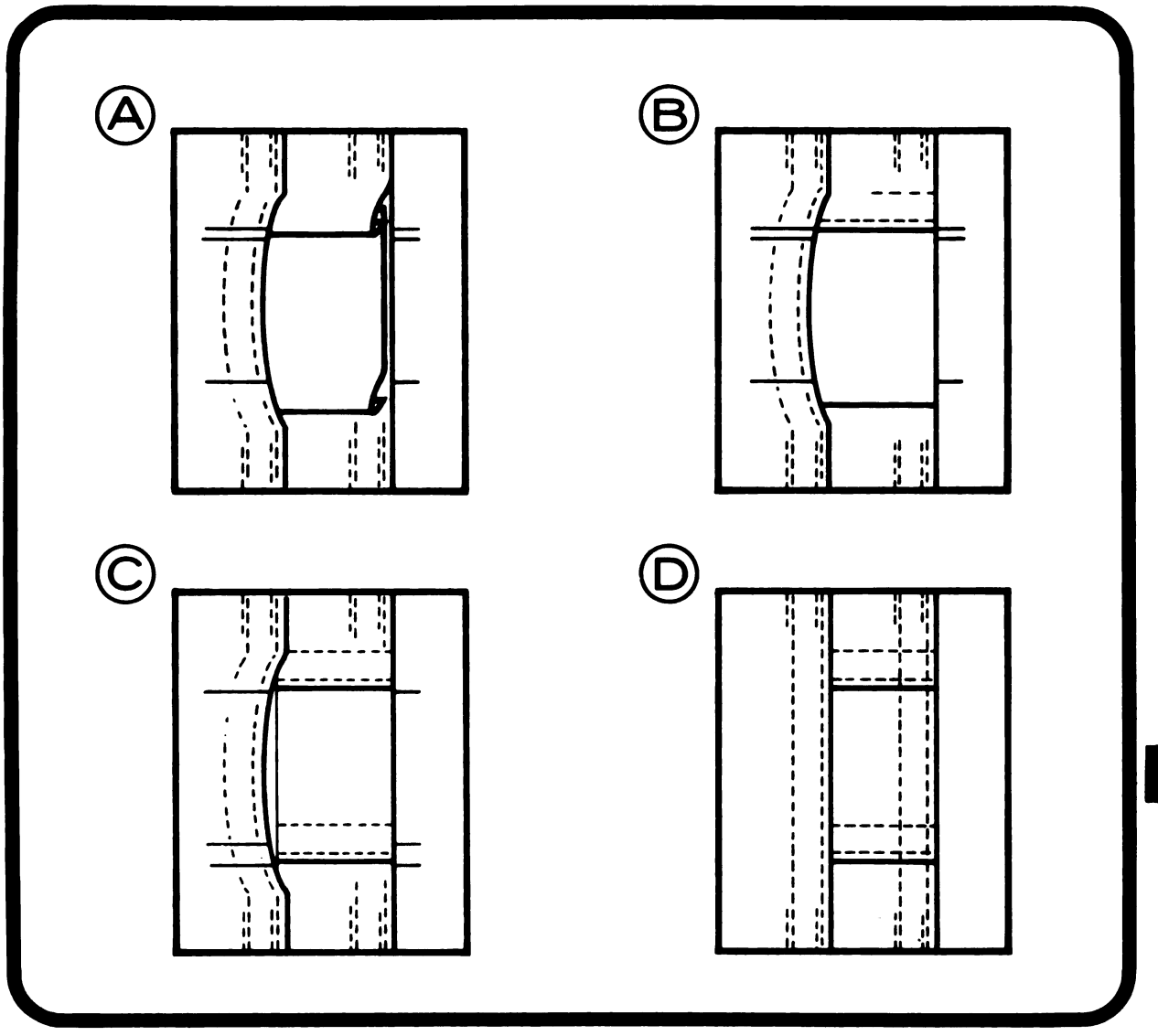

Figure 1213.2. Mark and fold the patch.

f. Sew across the panel one-eighth of an inch from the edge. (See B, fig 1213.3)

g. Sew a second stitch row three-eighths to one-half of an inch from the first stitch row. (See B, fig 1213.3.)

h. Using the same method (f and g above), stitch the bottom panel (See C, fig 1213.3.)

i. Finish the patch by aligning the panels and restitching them using the original seam marks. Make a 1-inch tack at the ends of both stitch rows on each panel. (See D, fig 1213.3.)

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1214

SEW SUPPORT STRAP PATCHES WITH A HEAVY-DUTY SEWING MACHINE.

CONDITIONS: You are working in the canvas repair shop. A supported unit has submitted canvas items with missing support strap patches. Your supervisor has instructed you to sew a support strap patch to a canvas item. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: a heavy-duty sewing machine, shears, chalk, 12-inch ruler, a cargo top with a torn out support strap patch.

STANDARD: You must complete all performance measures in sequence, without error, within 50 minutes for one support strap patch. Both pieces of patch material must be the same size and centered over the damaged area. Each raw edge must be folded under three-fourths of an inch.

PERFORMANCE MEASURES:

1

1. Measure and mark the damaged area.

   a. Measure from the center of the damaged area 2 inches on all sides. Mark with chalk.

   b. Connect the marked lines around the damaged area.

2. Prepare the patch material.

   a. Measure and mark two pieces of patch material 8 inches in length and width.

   b. Measure and mark the two patches three-fourths of an inch from all sides.

   NOTE: *A top patch and inverted patch are required for added tensile strength.*

   c. Cut out the patches.

   d. Fold each patch under three-fourths of an inch from the raw edge.

3. Position and sew the inverted patch.

   a. Turn the material wrong side up. Center the inverted patch over the damaged area.

   b. Sew a row of stitches around all sides one-eighth of an inch from the 3/4-inch fold. Make a 1-inch tack.

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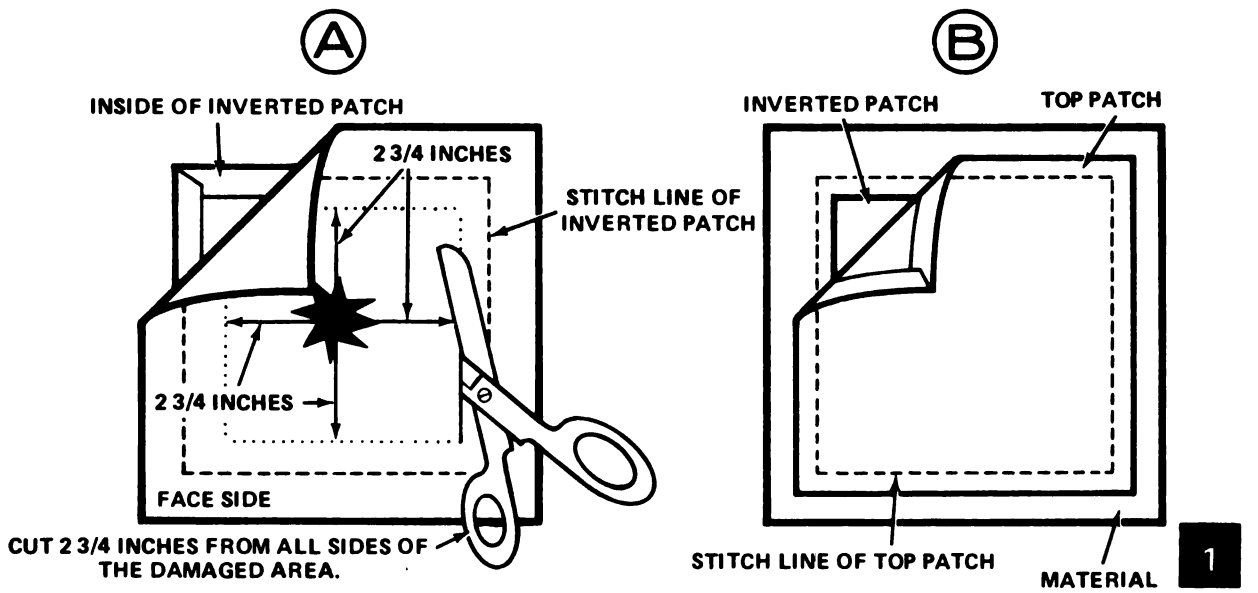

Figure 1214. Construction of support strap patch.

4. Position and sew the top patch.

a. Turn the item right side up. Cut away the damaged area along the 2-inch chalklines. (See A, fig 1214.)

b. Center the top patch over the inverted patch.

c. Sew a row of stitches around all sides one-eighth of an inch from the 3/4-inch fold. Make a 1-inch tack. (See B, fig 1214.)

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1215

CONSTRUCT AND SEW CHAPES ON CANVAS OR WEB ITEMS

CONDITIONS: You are working in the canvas repair area of a canvas repair shop. Canvas and web items with damaged chapes have been submitted for repair by a supported unit. You have been instructed by your supervisor to construct and sew chapes to repair a canvas item. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: fully assembled heavy-duty sewing machine, D-ring, 1-inch webbing, and a canvas or web item.

STANDARD: You must complete all performance measures in sequence without error, within 20 minutes for one chape. The chape must be stitched clockwise and diagonally. There must be no run-off or skipped stitches from the edge of the chapes. All webbing must be secured with tacks at the beginning and end of each stitch row.

PERFORMANCE MEASURES:

1

1. Construct and fit chape.

a. Position the canvas or web item on the tabletop of a heavy-duty sewing machine.

b. Cut a strip of webbing twice the length of the original chape. Put the webbing through the D-ring so the top end extends 1 inch beyond the bottom end. (See A, fig 1215.)

c. Make a 1/2-inch fold so the folded top end overlaps and fits squarely against the bottom end. (See B, fig 1215.)

2. Stitch the chape making sure each stitch row is secured with a 1-inch tack at the beginning and end.

a. Position the damaged item on the machine so the presser foot rests on the upper right-hand corner of the chape with the D-ring to the left.

b. Insert the needle one-fourth of an inch from the edge of the chape and stitch in a clockwise direction around all sides.(See C, fig 1215.)

c. Starting at the right corner, stitch diagonally from right to left and across the end. (See D, fig 1215.)

d. Starting at the left corner, stitch diagonally from left to right and across the end of the chape. (See E, fig 1215.)

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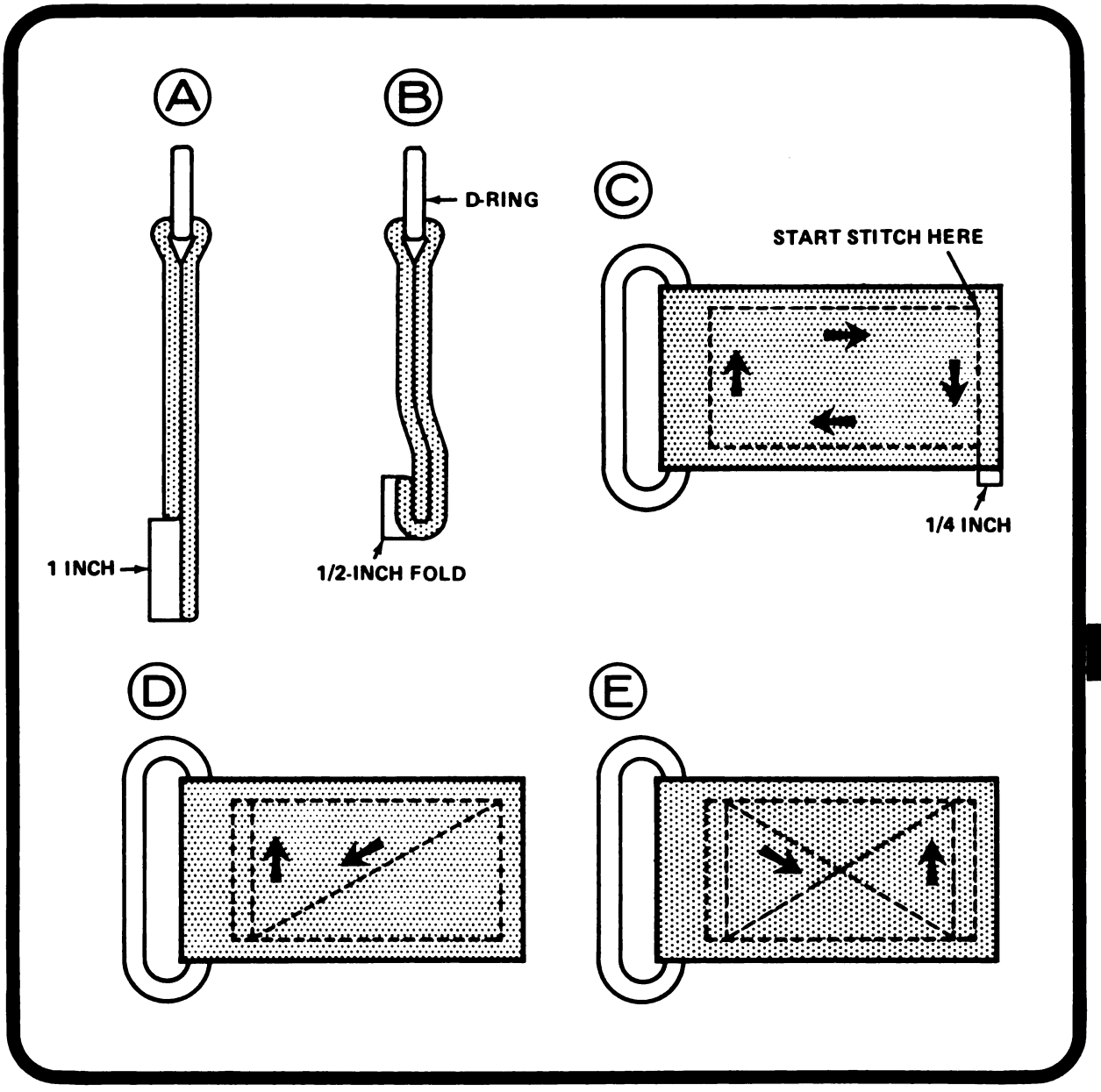

Figure 1215. Construct and sew chapes.

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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■ 101-513-1216

FABRICATE REPLACEMENT SEAT COVERS FOR TACTICAL VEHICLES

CONDITIONS: You are working in a fabric repair operations area. You have been told by your supervisor to fabricate replacement seat covers for a jeep. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: unserviceable front and rear seat covers for a jeep, 10 yards of mediumweight canvas material, thread, 36-inch ruler, upholstery hammer, chalk, medium- or heavy-duty sewing machine, and knife.

STANDARD: You must complete all performance measures in sequence to fabricate front and rear seat covers without error within 3 hours. The fabricated seat covers must be cut and sewn as specified in the performance measures. All folds must be sewn with the material turned inside out. All stitch rows must be even, straight, and tacked.

1 PERFORMANCE MEASURES:

1. Remove the front seat from the jeep.

NOTE: *Check the front seat pocket. If the logbook or other papers are in the pocket, put them in a safe place (as determined by your supervisor) until you finish the job.*

a. Unfasten the safety strap and pull it through the hole on the outside of the backrest. (See fig 1215.1.)

b. Pull the cushion up and slide it from the backrest.

c. Push the seat forward toward the steering wheel.

d. Remove the two retaining pins from the lower front seat. (See fig 1215.2.)

e. Remove the two retaining studs. Replace the locks on the studs.

f. Lift the front seat from the jeep and place it near the working area.

2. Remove the rear seat.

a. Use a pair of pliers to remove the retaining pins on each end of the seat.

b. Lift the rear seat from the jeep and place it near the work area.

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Figure 1216.1. Location of safety strap.

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Figure 1216.2. Location of retaining pins on the lower front seat.

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Figure 1216.3. Unsnap the fasteners.

c. Unsnap the fasteners on the seat cover and remove them. If the snap fasteners are rusty, use pliers to unsnap them. (See fig 1215.3.)

d. Lift the cushion from the seat assembly, and place it on the worktable.

e. Store the seat frames in the jeep until you have the covers ready to be put back on the frames.

3. Remove the backrest cover from the front seat.

a. Use a knife to open the seam at the bottom of the backrest cushion where the seam holds the front, back, and side panels together. Open the seams enough to remove the padding through the opening. (See fig 1216.4.)

b. Remove the padding from the seat. (See fig 1216.5.)

c. Cut the stitches completely around the bottom pieces of the backrest cushion.

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Figure 1216.4. Open the seam.

1

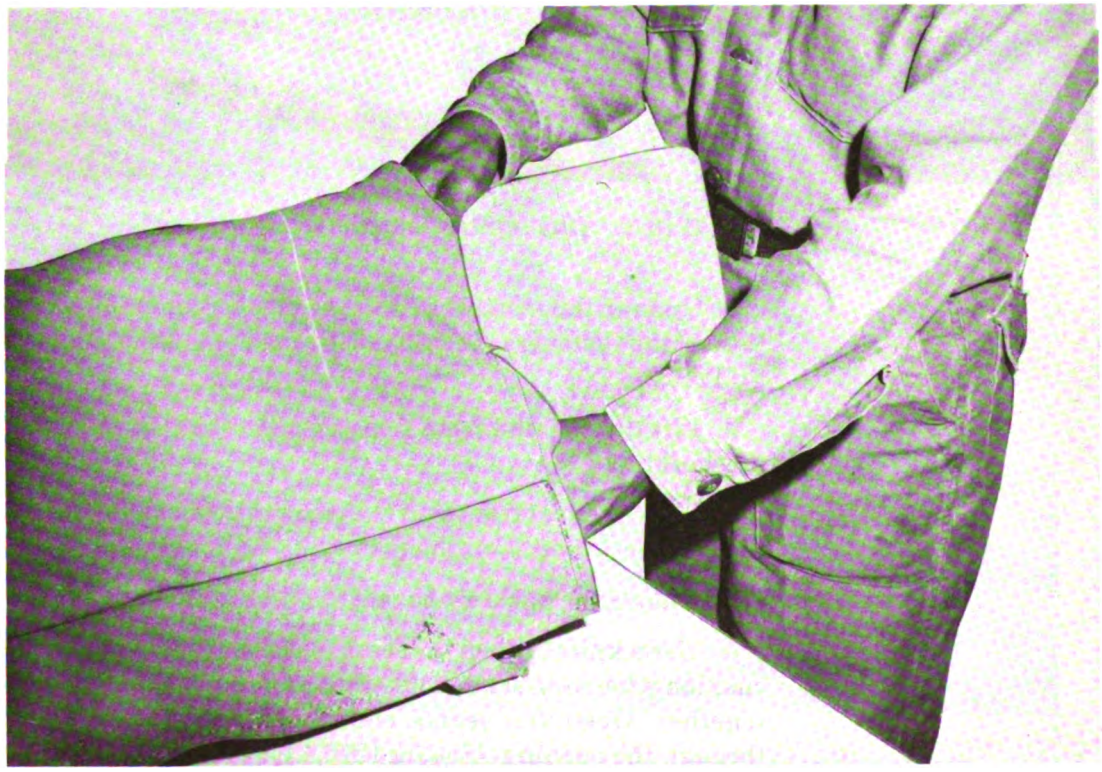

Figure 1216.5. Remove the padding.

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d. Use a knife to remove the pocket from the back panel.

e. Open all the seams so the pieces of the seat cover are separated.

4. Remove the front seat, rear seat, and backrest cushions. *The procedure is the same for all cushions.) (Save all tapes.)*

a. Start at bottom of the cushion and insert the knife in the seam. Open the seam enough to remove the padding.

b. Open all the seams so the pieces of the seat cover are separated.

5. Cut new material for the seat covers using the specifications in table 1216.

6. Make the front seat backrest.

a. Sew the sidepieces together with a seam one-half inch from the ends. You now have a sidepiece that is the required 82 inches long.

b. Sew the sidepiece to the frontpiece with a seam one-half inch from the edges. Start stitching about 2 inches from the end of the sidepiece to allow room for connecting the ends. Notch each corner before you sew it to the sidepiece.

1

7. Hem the outer back.

a. Fold the raw edges of the outer back under on the 1/2-inch chalklines. (**NOTE:** *The 1/2-inch fold is used for turn under material.)*

b. Fold the edges under on the 2 1/2-inch chalklines. (**NOTE:** *This gives you a hem with the raw edges turned under.)*

c. Stitch one-eighth inch from the top fold of the hem.

d. Sew a second stitch row one-eighth inch from the bottom fold of the hem.

8. Make the pocket.

a. Fold the raw edge of the top under on the 1/2-inch chalkline.

b. Fold the top under on the 1 1/2-inch chalkline. This gives you a hem with the raw edges turned under.

c. Hem the top as stated in 7c and d. (See fig 1216.6.)

d. Fold the raw edges of the sides and bottom under on the 3/4-inch chalklines.

e. Fold the edges under on the 1 3/4-inch chalklines. This gives you a 1-inch hem.

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Table 1216. Specifications for cutting and marking parts of new seat covers.

PART	NUMBER OF PIECES TO CUT	DIMENSIONS (IN INCHES)		CHALKLINES
		Length	Width	Inches from Edge
Front seat backrest				
side pieces	2	41 1/2	2 3/4	1/2 on long sides
front, inner back	2	19 1/2	22	1/2 on all sides
back flap	1	7	19 1/2	1/2 on all sides 2 1/2 on 19 1/2" side
outer back	1	19 1/2	22	1/2 on 19 1/2" side 2 1/2 on 19 1/2" side
Pocket	1	11 1/2	15	1/2 on 15" wide side 1 1/2 on 15" wide side 3/4 on 11 1/2"long side 1 3/4 on 11 1/2" long side
Front seat cushion				
top and bottom	2	19 1/2	17 1/2	
side piece	1	75	3	1/2 on all sides
end flaps	2	5	9 1/2*	1/2 on all sides except 9 1/2" wide side
side flaps	2	17 1/2		
Rear seat cushion				
top and bottom	2	35	16	1/2 on all sides
side flaps	2	10 1/2	4 1/2	2 1/2 on 10 1/2" side
sidepiece	1	97	3	
end flaps	2	9	5	
Rear seat backrest				
top and bottom	2	34	14 1/2	1/2 on all sides
sidepiece	1	97	2 3/4	
top and bottom flaps	2	32	4 1/2	

* The 9 1/2-inch-wide end should taper to 9 inches at the other end.

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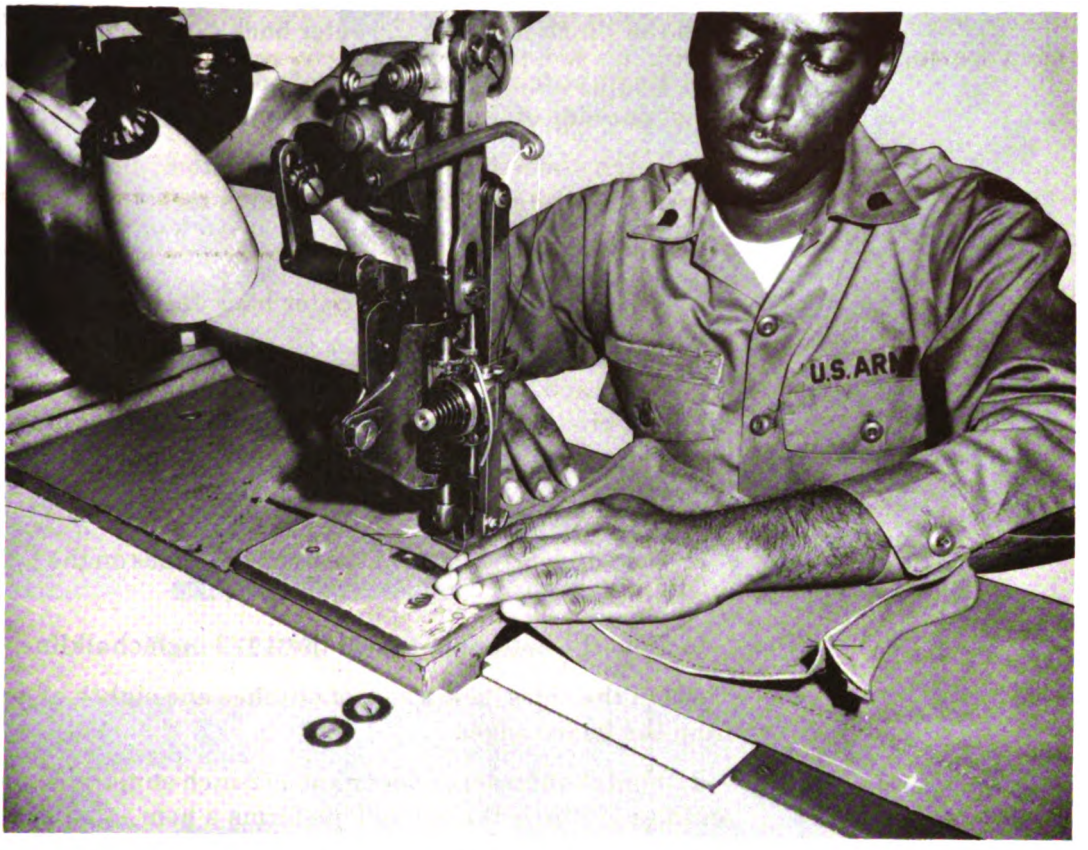

Figure 1216.6. Make the pocket.

f. Sew a row of stitches one-eighth inch from the fold of the hem. Stitch down one side, across the bottom, and up the other side.

g. On the bottom of the pocket, measure and mark a square at each corner that is 1 1/4 inches in from the side and 1 1/4 inches up from the bottom.

h. Cut out both squares along the chalklines.

i. Measure and mark a chalkline three-fourths of an inch from the raw edges of the cutaway areas.

j. Fold the raw edges under on the 3/4-inch chalklines.

9. Sew the pocket to the outer back.

a. Fold the outer back in half lengthwise. Mark the center with a chalkline.

b. Fold the pocket in half lengthwise. Mark the center with a chalkline.

c. On the outer back, measure and mark a chalkline 1 inch down from the top.

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d. Align the center chalkline of the pocket over the center chalkline of the outer back. The top of the pocket must be aligned with the 1-inch mark on the outer back.

e. Begin stitching one-eighth of an inch from the edge at the top of one side of the pocket. (See fig 1216.6.)

f. Stitch down the side, across the bottom, and up the other side. Finish the stitch row with a 1-inch tack.

10. Sew the sidepiece to the outer back.

a. Place the sidepiece and outer back face to face with the raw edges aligned.

b. Sew each side of the outer back to the sidepiece on the 1/2-inch chalkline. DO NOT sew the top and bottom of the outer back to the sidepiece.

11. Sew the back flap to the inner back.

a. Fold under the edges of the back flap sides on the 1/2-inch chalklines.

b. Fold the bottom under on the 2 1/2-inch chalkline.

c. On the sides, sew a row of stitches one-eighth of an inch from the folded edges.

d. Fold the bottom under on the 1/2-inch chalkline and then on the 2 1/2-inch chalkline. This forms a hem.

e. Sew a row of stitches one-eighth inch from the top of the hem.

f. Sew a second row of stitches one-eighth inch from the bottom of the hem.

g. Center the back flap on the inner back. The material must be face to face.

h. Sew a stitch row one-half inch from the raw edges.

12. Sew the inner back to the sidepiece.

a. Place the inner back and sidepiece face to face.

b. Begin stitching one-fourth of an inch from the raw edge at the bottom of one side.

c. Stitch up the side, across the top, and down the other side.

13. Stitch the outer back to the inner back.

a. Place the outer and inner back face to face.

b. Begin stitching one-fourth to one-half inch from the raw edge at the bottom of one side. (See fig 1216.7.)

c. Stitch up the side, across the top, and down the other side.

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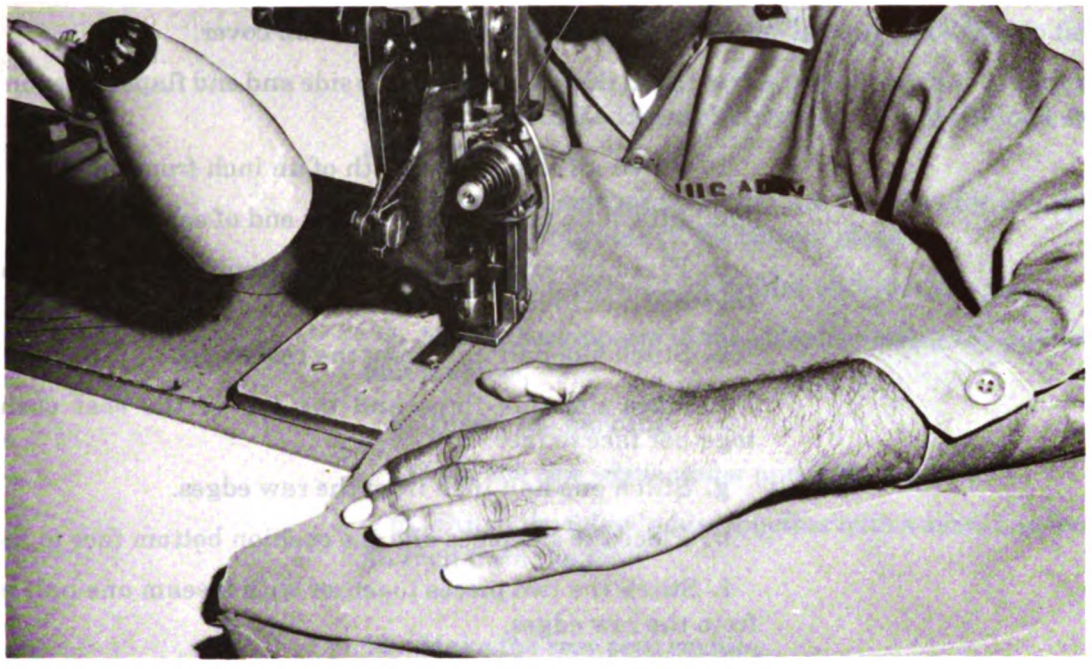

Figure 1216.7. Stitch the outer back to the inner back.

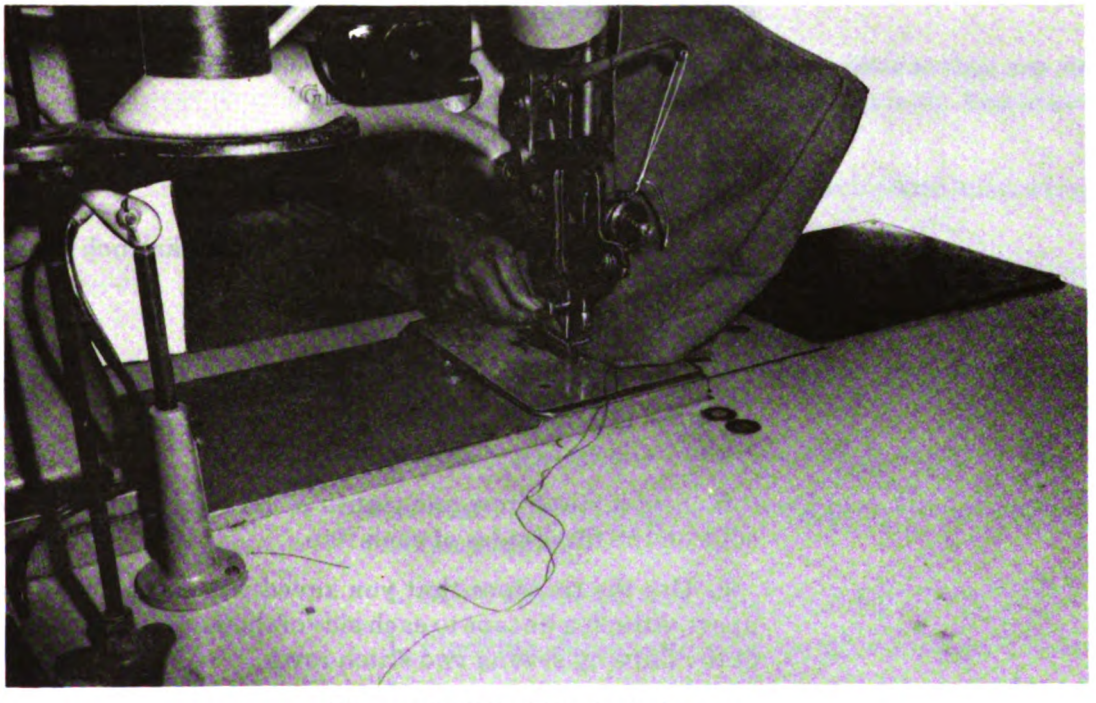

Figure 1216.8 Stitch the bottom.

d. Turn the material face side out.

e. Replace the padding through the open bottom.

f. Fold each bottom raw edge under one-half inch.

g. Stitch the bottom one-fourth of an inch from the folded edges. (See fig 1216.8.)

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14. Construct the front seat cushion cover.

a. Turn the raw edges on the side and end flaps under on the 1/2-inch chalklines.

b. Stitch all edges one-eighth of an inch from the fold.

c. Attach tie tapes to the narrow end of each flap.

d. Place the end flaps and the bottom of the seat cushion together face to face.

e. Stitch one-half inch from the raw edges.

f. Place the side flaps and the top of the seat cushion together face to face.

g. Stitch one-half inch from the raw edges.

h. Place the sidepiece and the cushion bottom face to face.

i. Stitch the two pieces together with a seam one-half inch from the raw edges.

j. Place the sidepiece and the cushion top face to face.

k. Begin stitching one-half inch from the raw edges at the back of one side.

l. Stitch around one side, across the front, and to the back of the other side. Leave the back open.

m. Insert the padding through the open back.

n. Turn the raw edges under one-half inch.

o. Stitch the folds together one-fourth of an inch from the edge.

15. Make the rear seat backrest.

a. Fold the top and bottom flaps on the 1/2-inch chalklines on the 4 1/2-inch-wide sides and on one of the 32-inch-long sides.

b. Sew a stitch row one-eighth of an inch from the folded edge on the three sides of each flap.

c. Use the tie tapes that you saved when you cut the seat apart. Attach a tie tape to each side of the 4 1/2-inch-wide sides of the flaps by sewing two stitch rows.

d. Place the bottom flap on the bottom piece face to face. Each end of the flap should be 1 inch from the end of the bottom.

e. Sew a stitch row one-half inch from the raw edges.

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f. Align the sidepiece with the bottom piece face to face.

g. Stitch the sidepiece to the bottom with a 1/2-inch hem that begins 7 inches from the corner of one of the long sides of the bottom piece.

h. Continue sewing until you are 7 inches for the opposite corner of the long side of the bottom piece.

i. Place the toppiece face to face with the sidepiece.

j. Stitch the toppiece to the sidepiece using the method in **g** and **h** above.

k. Insert the padding.

l. Fold the raw edges under one-half inch.

m. Stitch the folded edges together with a seam one-fourth of an inch from the fold.

16. Make the rear seat cushion.

a. On the side flaps, taper the long sides so that one side is 10 1/2 inches wide and the other side is 8 1/2 inches wide. You must taper 1 inch off each end.

b. On the end flaps, taper the long sides so that one side is 9 inches wide and the other side is 7 inches wide. You must taper 1 inch off each end.

c. Turn the flaps under one-half inch on all sides except the longest side of each.

d. Hem the folded edges one-eighth of an inch from the fold.

e. Attach the tie tapes to the tapered end of each flap.

f. Place the side flaps face to face on the long sides of the cushion bottom.

g. Sew a stitch row one-half inch from the raw edge.

h. Place the end flaps face to face on the short sides of the cushion bottom.

i. Sew a stitch row one-half inch from the raw edge.

j. Place the sidepiece and the cushion top face to face.

k. Sew a stitch row one-half inch from the raw edge.

l. Place the sidepiece face to face on the bottom piece. One end of the sidepiece must be at the end corner of a long side of the bottom.

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m. Sew a stitch row one-half inch from the raw edge down the long side, across the short side, and up the other long side. Leave one short side open.

n. Insert the padding.

o. Fold the raw edges under one-half inch.

p. Stitch the folded edges together one-fourth of an inch from the fold.

17. Replace front and rear seats by putting the

a. rear seat cushion and seat assembly in the rear of the jeep.

b. two retaining pins on each end of the seat to lock the seat in place.

c. front passenger seat cushion in place. Pull the safety strap through the opening on the right side of the passenger seat backrest.

d. seat assembly in the jeep. Replace the retaining pins in the seat holddown brackets in the front and rear at the bottom of the seat.

e. cushions on the driver's seat assembly. Place the assembly in the jeep.

18. Put manuals and logbooks back in the jeep pocket.

1

REFERENCE:

The performance measures give you all the information you need to know to complete this task. No additional references are required.

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■ 101-513-1217

REPLACE DAMAGED CORNER SLIDE FASTENERS ON GP MEDIUM OR GP LARGE TENTS.

CONDITIONS: You are working in the canvas repair section of a canvas repair shop. A supported unit has submitted for repair GP medium or GP large tents with damaged corner slide fasteners. Your supervisor has instructed you to replace damaged corner slide fasteners on GP medium or GP large tents. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Material and equipment required: heavy-duty sewing machine, GP large or GP medium tents, knife, shears, ruler, chalk, needle-nose pliers, and replacement slide fastener.

STANDARD: You must complete all performance measures in sequence within 1 hour, without error for one GP medium or GP large tent. The slide fastener must be alined with the material. All stitched rows must be tacked at the beginning and end.

PERFORMANCE MEASURES:

1. Prepare the tent and slide fastener for sewing.

   a. Select a slide fastener of the same color and length as the damaged one.

   b. Position the tent inside out.

   c. Place the new slide fastener over the damaged slide fastener.

   d. Draw index marks with chalk across the slide fastener tapes and on the tent. (See fig 1217.1.)

   e. Remove the damaged slide fastener by using a knife to cut the stitches that hold it in place.

2. Install the replacement slide fastener. (The procedures below are used for both sides of the slide fastener.)

   a. Aline the index marks on the slide fastener with the index marks on the tent.

   b. Fold under a half inch of the slide fastener tape along the entire length of the fastener.

   c. Begin sewing the slide fastener tape at the bottom of the side wall with a 1-inch tack. (See fig 1217.2.)

   d. Sew a row of stitches three-sixteenths of an inch from the folded edge of the slide fastener. Continue to sew to the eave of the tent and secure the stitch row with a 1-inch tack.

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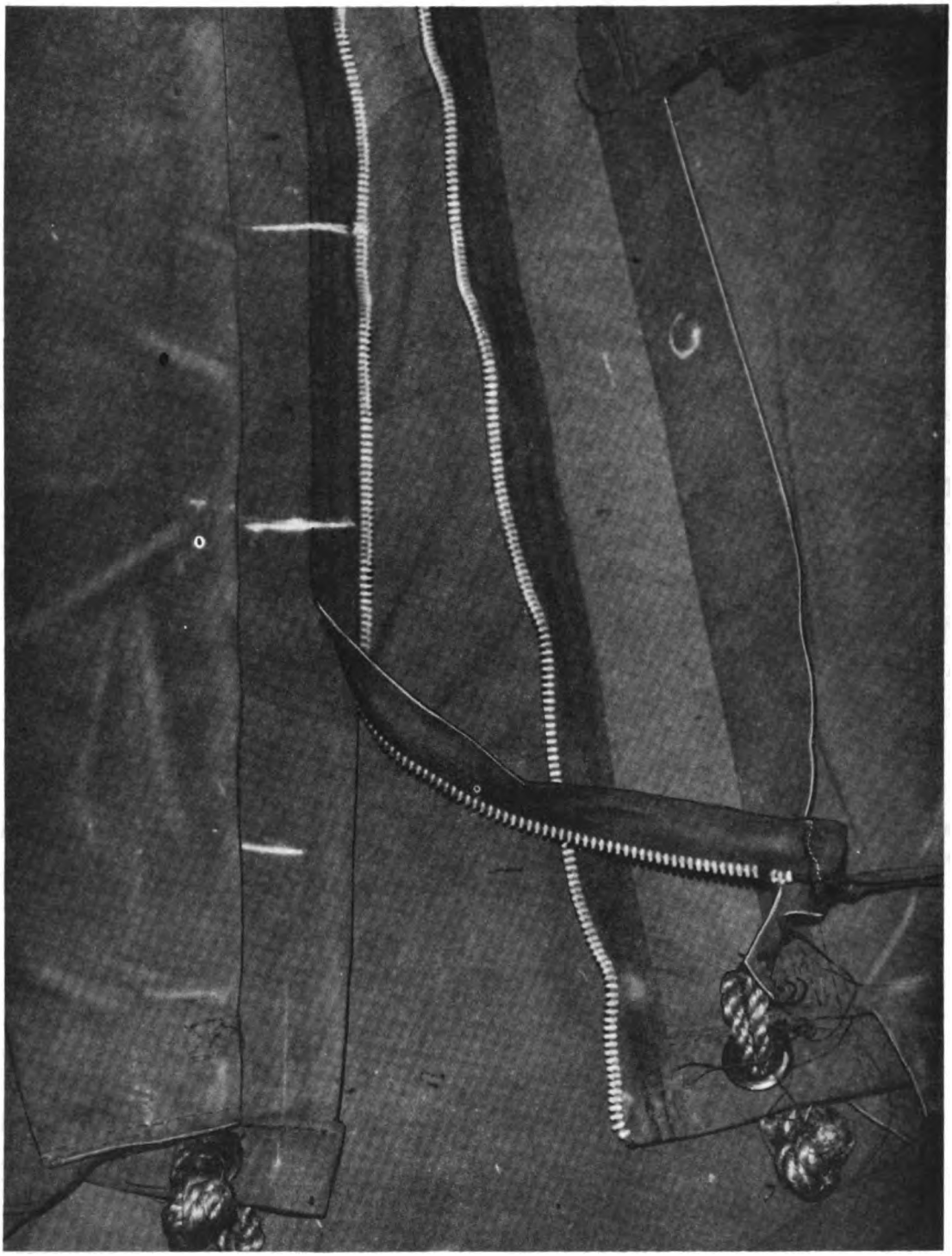

Figure 1217.1. Make index marks.

e. Starting at the eave, sew a row of stitches one-fourth of an inch from the first stitch row. Make a 1-inch tack to secure the stitch row.

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Figure 1217.2. Stitch the slide fastener in place.

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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Section III

FABRIC REPAIR INSPECTOR (43M2A)

TASK NUMBER	TITLE	PAGE
	CLOTHING, TEXTILE, CANVAS, OR WEB INSPECTIONS	
101-513-2101	Process incoming DA Form 2407 (Maintenance Request).	3-190
101-513-2102	Transfer information from DA Form 2407 (Maintenance Request) to DA Form 2405 (Maintenance Request Register).	3-195
101-513-2103	Inspect and classify individual issue items of clothing.	3-199
101-513-2104	Perform final inspection on repaired CTA 50-900 items.	3-201

2

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PROCESS INCOMING DA FORM 2407 (MAINTENANCE REQUEST).

CONDITIONS: You are working in the receiving section of a fabric repair shop. A supported unit has submitted items for repair on a partially completed DA Form 2407 (Maintenance Request). You must process the maintenance requests. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials and equipment required: one partially completed DA Form 2407 (Maintenance Request), TM 38-750, and AR 710-2.

STANDARD: You must complete all performance measures in sequence within 10 minutes, without error, to process one DA Form 2407 (Maintenance Request).

PERFORMANCE MEASURES:

1

1. Check DA Form 2407 (fig 2101.1) to see that the following has been entered by the supported unit:

a. Signature of person listed on a current DA Form 1687 (Notice of Delegation of Authority-Receipt for Supplies) (fig 2101.2.)

b. Type of work to be done.

c. A priority designator code.

d. Organization/activity title or designator.

e. Location of unit.

f. Unit identification code.

g. Serial number of the item being repaired.

h. Nomenclature of the item being repaired.

i. Line number of the item being repaired.

j. Model number of the item being repaired.

k. National stock number (NSN) of the item being repaired.

l. Symbol of the maintenance activity performing the maintenance.

m. Utilization code (if applicable).

n. "R" to the right of the "NO" in the selected item column if the item is a DA Form 2406 reportable item.

o. "X" in the appropriate space that indicates when the failure was detected.

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MAINTENANCE REQUEST
For use of this form, see TM 38-750; the proponent agency is DCSLOG.

PAGE NO.	NO. OF PAGES	REQUIREMENT CONTROL SYMBOL CSOLD-1047(R1)

SECTION I – EQUIPMENT DATA

CONTROL NUMBER	WORK ORDER NUMBER	WEBDC	ORG PD	PD AUTHENTICATION
529311				

[X] WORK REQUEST / [ ] MWO / [ ] WARRANTY CLAIM	3a. ORGANIZATION	b. LOCATION	c. UNIT IDENT CODE
	HQ&HQ Co., 1st Bde 110th Inf Div	Ft Blank, Texas 77011	WAABAA

2. SERIAL NO.	3. NOUN NOMENCLATURE	4. LINE NO.	5. MODEL	6. NATIONAL STOCK NUMBER
	TENT		GP med	8340-00-753-6711

7. MAINTENANCE ACTIVITY	a. LEVEL	8. UTILIZATION CODE	9. MCSR ITEM	c. ERC	d. PACING ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
F		ON							

14. FAILURE DETECTED DURING (Select one - use ✓ or X)
[ ] A Scheduled Maintenance [ ] C Test [ ] E Storage [ ] G Flight
[ ] B Handling [ ] D Normal Op [ ] F Inspection [ ] H Other

15. FIRST INDICATION OF TROUBLE (Select one - use ✓ or X)
[ ] 000 Inoperative [ ] 200 Overheating [ ] 700 Out of Adjustment
[ ] 000 Noisy [ ] 207 Low Performance [ ] Other

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM (Do not prescribe repairs)

Quantity of Item: 7

16a. REMARKS

All items have defects such as holes and tears.

PREPARATION INSTRUCTIONS

(Prior to using this form, read TM 38-750 for detailed preparation instructions)

(1) Place a "✓" or an "X" in the box for the type action required.

(2) Enter the WEBDC if the item is Materiel Condition Status Reportable.

(3) Enter the priority designator as determined from the urgency of need and force activity designator.

(4) The Unit Commander, Chief of TDA activity or their designated representative will authenticate, by signature, a priority of 01 through 08.

(5) Block 1a. Enter the name of the organization submitting the request.

(6) Block 1b. Enter the unit submitting the request; units overseas enter APO only.

(7) Block 1c. Enter the unit identification code of the unit in block 1a.

(8) Block 2. Enter the equipment serial no. For ammunition, enter the lot number. For administrative use vehicles enter the USA registration number.

(9) Block 3. Enter the noun abbreviation of the item.

(10) Block 4. Enter the item line number if applicable.

(11) Block 5. Enter the model number.

(12) Block 6. Enter the national stock number of the item listed in block 3.

(13) Block 7. Enter the name of the support activity.

(14) Block 7a. Enter the symbol of the maintenance category *(O, F, H, D or L)*

(15) Block 8. Enter the utilization code.

(16) Block 9. Enter the word "yes" if the item is Materiel Condition Status Reportable.

(17) Block 9a. Enter the equipment readiness code, if applicable.

(18) Block 9b. Enter the word "yes" if the item is a pacing item.

(19) Block 10. Enter the hour reading if applicable

(20) Block 11. Enter the mileage from the odometer if applicable.

(21) Block 12. Enter the total rounds fired if applicable.

(22) Block 13. For turbine engines, enter the number of hot starts.

(23) Block 14. Enter a "✓" or "X" in the proper block.

(24) Block 15. Enter a "✓" or "X" in the proper block.

(25) Block 16. Describe briefly the fault or symptoms needing correction.

(NOTE: This form is complete for test purposes only.)

23. SUBMITTED BY	24. RECEIVED BY
JULIAN DATE 9013	JULIAN DATE

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2

Figure 2101.1 Sample DA Form 2407 as it is received by the repair activity.

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NOTICE OF DELEGATION OF AUTHORITY-RECEIPT FOR SUPPLIES
For use of this form, see AR 710-2: the proponent agency is the Office of the Deputy Chief of Staff for Logistics

DATE: 15 Aug 78

AUTHORIZED REPRESENTATIVE(S)

ORGANIZATION	STATION
HQ & HQ Co 1st Bde 110th Inf Div	Ft Blank, Texas

LAST NAME–FIRST NAME–MIDDLE INITIAL	SOCIAL SECURITY ACCOUNT NUMBER	AUTHORITY REQ	AUTHORITY REC	SIGNATURE AND INITIALS
ETS: 15 AUG 1980 DOE, JOHN O.	001-60-1692	X	X	John O. Doe J.O.D.
ETS: 4 OCT 1980 WRIGHT, IRVING M.	155-62-9000	X	X	Irving M. Wright I.M.W.
ETS: 8 MARCH 1980 JONES, WILLIAM R.	312-03-2978	X	X	William R. Jones, W.R.J.
///NO ENTRY///				

AUTHORIZATION BY RESPONSIBLE SUPPLY OFFICER OR ACCOUNTABLE OFFICER

THE UNDERSIGNED HEREBY DELEGATES TO WITHDRAWS FROM THE PERSON(S) LISTED ABOVE, WHOSE SIGNATURE(S) APPEAR(S) ABOVE. THE AUTHORITY TO SIGN:

REMARKS

I ASSUME FULL RESPONSIBILITY

ORGANIZATION	GRADE	ACCOUNT NUMBER
HQ & HQ Co., 1st Bde, 110th Inf Div	CPT	WAABAA

LAST NAME–FIRST NAME–MIDDLE INITIAL (Print or Type)	SIGNATURE
SMITH, ALLEN T.	Allen T. Smith

DA FORM 1 DEC 57 1667 REPLACES EDITION OF 1 APR 56.

Figure 2101.2 Completed DA Form 1687.

p. "X" in the space that most accurately describes the condition of the item at the time the trouble was found. If "other" has been checked, the appropriate code found on the reverse side of the last page of the maintenance request must be entered.

q. Brief description of the work to be done or the failure that was detected.

2. Enter the following on the DA Form 2407 (see fig 2101.3):

a. Designation of your organization or activity.

b. Location of your organization or activity.

c. Unit identification code of your organization or activity.

d. "X" in the appropriate block to indicate if your organization or activity is TO&E, TD, or contractor-operated.

e. Appropriate Army Management System Activity Account Code as defined in AR 37-110 series (if applicable).

f. Action code that identifies that an initial inspection of the item submitted has been done.

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MAINTENANCE REQUEST
For use of this form, see TM 38-750, the proponent agency is DCSLOG

PAGE NO.	NO. OF PAGES	REQUIREMENT CONTROL SYMBOL
1	1	CSGLD-1047(R1)

SECTION I – EQUIPMENT DATA

CONTROL NUMBER	WORK ORDER NUMBER	WESDC	ORG PD	PD AUTHENTICATION
529312				

[X] WORK REQUEST [ ] MWO [ ] WARRANTY CLAIM	1a. ORGANIZATION	b. LOCATION	c. UNIT IDENT CODE
	HQ + HQ CO, 1ST BDE 110TH INF DIV	FT BLANK, TEXAS 77011	WABAAA

2. SERIAL NO.	3. NOUN NOMENCLATURE	4. LINE NO.	5. MODEL	6. NATIONAL STOCK NUMBER
	TENT		GP M&D	8340-00-768-6711

7. MAINTENANCE ACTIVITY	a. LEVEL	8. UTILIZATION CODE	9. MCSR ITEM	a. ERC	b. PACING ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
F		ON							

14. FAILURE DETECTED DURING (Select one · use ✓ or X)
[A] Scheduled Maintenance [C] Test [E] Storage [G] Flight
[B] Handling [D] Normal Op [X F] Inspection [H] Other

15. FIRST INDICATION OF TROUBLE (Select one · use ✓ or X)
[068] Inoperative [258] Overheating [790] Out of Adjustment
[008] Noisy [387] Low Performance [X 99] Other

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM (Do not prescribe repairs)

7 ITEMS WITH DEFECTS SUCH AS HOLES AND TEARS (REPAIR AS NEEDED)

16a. REMARKS

SECTION II – WORK ACCOMPLISHED

17a. REPAIR ORGANIZATION/ACTIVITY	c. UNIT IDENT CODE	18. TYPE ORGANIZATION/ACTIVITY ACCOMPLISHING WORK (Select one · use ✓ or X)	19. AMS ACCOUNT CODE
27TH MAINT (DS)	WABAAA	[X 1] TOE [2] TD [3] CONTRACTOR	
b. LOCATION: FT. BLANK, TEXAS			

20a. ACT CODE	b. FAILURE CODE	c. COMPONENT/PART NOUN, SVC, OR MWO NO	d. CB CODE	e. REF DESIGNATOR	f. MFR CODE	MANHOURS (Hrs & tenths) g.	NATIONAL STOCK NUMBER h.	i. PART SOURCE CODE	QTY j.	PARTS COST k.
F	070			INITIAL INSPECTION		.4				
G		TENT GP M&D 7 EA				40.0	8340-00-768-6711			
							8340-00-768-6711	P	6YOS	3.00
G	799	7 EA				1.0				

l. TOTAL MANHOURS	m. TOTAL MANHOURS COST	n. TOTAL PARTS COST
41.4	$ 151.38	$ 3.00

21. DELAY (Select one) [1] Parts [2] Manpower [3] Facilities [4] Funds [5] Tools
22. [ ] DATA TRANSCRIBED

23. SUBMITTED BY	24. RECEIVED BY	25. WORK STARTED BY	26. INSPECTED BY	27. ACCEPTED BY
John Doe	Joe Smith	Ben Jones	Joe Smith	John Doe
JULIAN DATE 8227	JULIAN DATE 8227	JULIAN DATE 8231	JULIAN DATE 8237	JULIAN DATE 8238

28. DISPOSITION (Select one)
[X A] To User [C] Salvaged
[B] To Stock [D] Evacuated
[E] Cannibalization

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2

Figure 2101.3 Completed DA Form 2407.

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g. Failure code that identifies the type of failure found during the initial inspection.

h. Nomenclature of the item submitted for repair.

i. Total man-hours required to perform the initial inspection.

j. Name of the inspector performing the initial inspection and the Julian date when item was inspected.

3. When the items are returned from the repair section, verify that the repairman has entered the following information:

a. Action code that describes the action.

b. Failure code that describes the condition of the item being repaired.

c. Items by nomenclature used for repairs.

d. Man-hours used to complete repairs.

e. Current NSNs for items used in making repairs.

f. Quantity of items repaired.

g. Cost of materials or parts used in making the repairs.

h. Total man-hours required to make the repairs.

2

i. Total cost of the man-hours used.

j. Total cost of the parts used to make the repairs.

k. "X" in the block that explains why repair is delayed.

l. His name and the Julian date.

4. Verify that the inspector has entered the following:

a. His name and the Julian date when he completed his inspection.

b. "✓ " or "X" in the appropriate disposition box.

REFERENCES:

AR 710-2 (Materiel Management for Using Units, Support Units, and Installations).

TM 38-750 (The Army Maintenance Management System (TAMMS)), chapter 3.

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■ 101-513-2102

TRANSFER INFORMATION FROM DA FORM 2407 (MAINTENANCE REQUEST) TO DA FORM 2405 (MAINTENANCE REQUEST REGISTER).

CONDITIONS: You are working in the receiving section of a fabric repair shop. You have been told by your supervisor to transfer information from a DA Form 2407 (Maintenance Request) to a DA Form 2405 (Maintenance Request Register). This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: one completed DA Form 2407, one blank DA Form 2405, worktable or desk, and a pen or pencil.

STANDARD: You must complete all performance measures, in sequence, within 10 minutes, without error for each form. You must correctly complete the job order number, quantity and nomenclature, work requested by, and registration number columns.

PERFORMANCE MEASURES:

1. Complete the job order number column by entering the control number found in the upper left corner of the DA Form 2407. (See figs 2102.1 and 2102.2.)

2

2. Complete the quantity and nomenclature column by entering the quantity and nomenclature of the item as entered on the top part of DA Form 2407.

3. Complete the work requested column by entering the unit identification code in the upper right corner of DA Form 2407.

4. Complete serial or USA registration number column by entering the serial number or USA registration number of the item submitted for repair. (**NOTE:** *Tents do not have serial numbers or USA registration numbers, so use the National Stock Number.)* This information is in the top part of DA Form 2407.

5. Complete brief description of work column by entering the information in the deficiencies column of DA Form 2407.

6. Complete date job order received column by entering the Julian date the DA Form 2407 was received.

7. Complete date repair started column by entering the Julian date the work was started by the repair activity.

8. Complete the date repair finished column by entering the Julian date the work was completed.

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MAINTENANCE REQUEST
For use of this form, see TM 38-750; the proponent agency is DCSLOG.

PAGE NO. 1 | NO. OF PAGES 1 | REQUIREMENT CONTROL SYMBOL CSGLD-1047(R1)

SECTION I – EQUIPMENT DATA

CONTROL NUMBER	WORK ORDER NUMBER	WESDC	ORG PD	PD AUTHENTICATION
529312				

☑ WORK REQUEST ☐ MWO ☐ WARRANTY CLAIM

1a. ORGANIZATION	b. LOCATION	c. UNIT IDENT CODE
HQ + HQ CO. 1ST BDE 110TH INF DIV	FT. BLANK, TEXAS 77011	WAABAA

2. SERIAL NO.	3. NOUN NOMENCLATURE	4. LINE NO.	5. MODEL	6. NATIONAL STOCK NUMBER
	TENT		GP MED	8340-00-753-6711

7. MAINTENANCE ACTIVITY	a. LEVEL	8. UTILIZATION CODE	9. MCSR ITEM	a. ERC	b. PACING ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
F		ON							

14. FAILURE DETECTED DURING (Select one - use √ or X)
☐ A Scheduled Maintenance ☐ B Handling ☐ C Test ☐ D Normal Op ☐ E Storage ☒ F Inspection ☐ G Flight ☐ H Other

15. FIRST INDICATION OF TROUBLE (Select one - use √ or X)
☐ 068 Inoperative ☐ 008 Noisy ☐ 258 Overheating ☐ 387 Low Performance ☐ 790 Out of Adjustment ☒ 670 Other

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM (Do not prescribe repairs)
QUANTITY OF ITEMS 7EA
ALL ITEMS HAVE DEFECTS SUCH AS HOLES AND TEARS
(REPAIR AS NEEDED)

16a. REMARKS

SECTION II – WORK ACCOMPLISHED

17a. REPAIR ORGANIZATION/ACTIVITY	c. UNIT IDENT CODE	18. TYPE ORGANIZATION/ACTIVITY ACCOMPLISHING WORK (Select one - use √ or X)	19. AMS ACCOUNT CODE
27TH MAINT (DS)	WABAHA	☒ 1 TOE ☐ 2 TD ☐ 3 CONTRACTOR	

b. LOCATION: FT. BLANK, TEXAS

20a. ACT CODE	FAILURE CODE b	c. COMPONENT/PART NOUN, SVC, OR MWO NO. d. CB CODE	e. REF DESIGNATOR	f. MFR CODE	MANHOURS (Hrs & tenths) g	NATIONAL STOCK NUMBER h	PART SOURCE CODE i	QTY j	PARTS COST k
F	070		INITIAL INSPECTION		.5				
C		TENT GP MED 7EA			40.0	8340-00-753-6701			
						8340-00-753-6711	P	6YD	3.00
G	799	7EA			1.0				

l. TOTAL MANHOURS	m. TOTAL MANHOURS COST	n. TOTAL PARTS COST
41.5	$ 151.88	$ 3.00

21. DELAY (Select one) ☐ 1 Parts ☐ 2 Manpower ☐ 3 Facilities ☐ 4 Funds ☐ 5 Tools
22. ☐ DATA TRANSCRIBED

23. SUBMITTED BY	24. RECEIVED BY	25. WORK STARTED BY	26. INSPECTED BY	27. ACCEPTED BY	28. DISPOSITION (Select one)
John Doe	Joe Moe	John Smith	Joe Moe	John Doe	☒ A To User ☐ B To Stock ☐ C Salvaged ☐ D Evacuated ☐ E Cannibalization
JULIAN DATE 8227	JULIAN DATE 8227	JULIAN DATE 8231	JULIAN DATE 8237	JULIAN DATE 8238	

DA FORM MAY 81 2407 EDITION OF JUL 79 IS OBSOLETE. CONTROL COPY 3

2

Figure 2102.1 Information to transfer to DA Form 2405.

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MAINTENANCE REQUEST REGISTER

For use of this form, see TM 38-750; the proponent agency is the Office of the Deputy Chief of Staff for Logistics

JOB ORDER NUMBER a	QUANTITY AND NOMENCLATURE b	WORK REQUESTED BY c	SERIAL OR USA REGISTRATION NUMBER d	BRIEF DESCRIPTION OF WORK, OR REMARKS e	DATE JOB ORDER RECEIVED f	DATE REPAIR		MAN-HOURS i	COST OF		TOTAL COST OF JOB l
						STARTED g	FINISHED h		LABOR j	PARTS k	
654092	1EA. GP MED TENT	WAABAA	8340-00-783-6711	REPAIR / RES. TEARS	0227	0228	8237	4H5	$151.88	$3.00	$154.88

DA FORM 1 APR 62 2405

Figure 2102.2. Sample entries on DA Form 2405.

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9. Complete man-hours column by entering the total man-hours used to complete the repair.

10. Complete cost of labor column by entering the total labor cost after all repairs are completed.

11. Complete the cost of parts column by adding the cost of all parts and entering the total.

12. Complete total cost of job column by adding the cost of labor and parts.

REFERENCES: **TM 38-750 (The Army Maintenance Management System (TAMMS)), chapters 2, 3, and 4.**

2

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■ 101-513-2103

INSPECT AND CLASSIFY INDIVIDUAL ISSUE ITEMS OF CLOTHING.

CONDITIONS: You are working in the receiving and inspection section of a fabric repair shop. Clothing items have been submitted from the inspection section for repair. Your supervisor has instructed you to classify the individual issue items of clothing. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: one AG 344 uniform (coat and trousers), chalk, AR 32-15, and TM 10-8400-201-23.

STANDARD: You must complete all performance measures within 15 minutes, without error, to inspect and classify one item of clothing. The item must be classified under the provisions of AR 32-15 by priority factors.

PERFORMANCE MEASURES:

1. Inspect items to be classified according to specifications in TM 10-8400-201-23 for the following:

   a. Holes and worn places.

   b. Tears and cuts.

   c. Torn or missing tabs, straps, hanger loops, and shoulder loops.

   d. Worn pockets and pocket flaps.

   e. Open seams and broken stitches.

   f. Missing or broken buttons.

   g. Loose, damaged, or missing bar tacks.

   h. Worn or damaged collars.

   i. Worn or damaged linings.

   j. Fading of material.

2. Classify items by using the appropriate classification conditions code below. (See fig 2103.)

   a. Code "A" when an item is found to be new and unused.

   b. Code "B" when an item has a life expectancy of 75 percent of a like-new item.

   c. Code "F" for unserviceable items which are economically repairable.

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ITEM CLASSIFICATION AND SOURCE, MAINTENANCE AND RECOVERABILITY CODES

1-6. Item Classification Codes

Code	*Explanation*
A	New and unused property possessing original appearance and serviceability.
B	Serviceability as to be acceptable for issue or sale in lien of like class A new property. (1) Items peculiar to the clothing allowance system will possess a high degree of appearance and serviceability. These items affect the personal appearance of the individual and should be in such condition as to be readily acceptable for issue and cash sale purposes. In no case should the wear expectancy be less than 75 per cent of a like-new item. (2) Items of organizational clothing and equipage will possess such appearance and degree of serviceability as to justify their issue to troops and afford a satisfactory military appearance. As a guide only and where practicable for application, these items should possess not less than 50 per cent of the life of a like new item.
F	Unserviceable items which are economically repairable. Economically repairable items are those which may be restored to class B condition for not more than 35 per cent (clothing) to 65 per cent (equipage) of prices contained in current Department of Defense Federal supply catalog management data lists.
H	Unserviceable items which are obviously scrap or salvage, or for which any use would require a repair cost exceeding 35 per cent for clothing or 65 per cent for equipage of the current cost of the item.
X	Items which do not possess the appearance or degree of serviceability to justify the classification of B or which cannot be repaired economically for the purpose originally intended, but which can be used as an end item (without benefit of repairs) for duties which are harmful to clothing: i.e., mechanics, painters, construction workers; etc.

Figure 2103. Excerpt from AR 32-15.

d. Code "H" for unserviceable items which are obviously scrap or salvage.

e. Code "X" when items are unserviceable and cannot be repaired economically.

REFERENCES:

AR 32-15 (Classification and Inspection).

TM 10-8400-201-23 (Organizational and DS Maintenance Manual: General Repair Procedures for Clothing and Individual Equipment).

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■ 101-513-2104

PERFORM FINAL INSPECTION ON REPAIRED CTA 50-900 ITEMS.

CONDITIONS: You are working in the receiving and inspection section of a fabric repair shop. CTA 50-900 items have been repaired and returned to the inspection section for final inspection. Your supervisor has instructed you to perform the final inspection. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: one OG 107 field jacket.

STANDARD: You must complete all performance measures within 5 minutes, without error, for the final inspection of one CTA 50-900 item. Replacement material must be the same color and texture and all stitches must be secured by tacking.

PERFORMANCE MEASURES:

1. Inspect repaired CTA 50-900 items to make sure:

a. rips, tears, or cuts have been sewn or patched.

b. worn or deteriorated places have been darned or patched.

c. torn, missing, or worn tabs, straps, hanger loops, and epaulets have been repaired or replaced.

2

d. frayed edges, hems, sleeves, and shirt tails have been repaired.

e. damaged pockets and pocket flaps have been repaired or replaced.

f. damaged button holes have been repaired.

g. all new stitch rows have been secured by tacking.

h. torn or excessively worn collars or cuffs have been replaced or repaired.

i. all stitches are smooth and evenly spaced.

j. thread and patches are of the same color and texture as items being repaired.

2. Mark any defects that were overlooked when the item was repaired.*(Use the marking symbols shown in fig 2104.)* Return items with defects to a repairman for repair.

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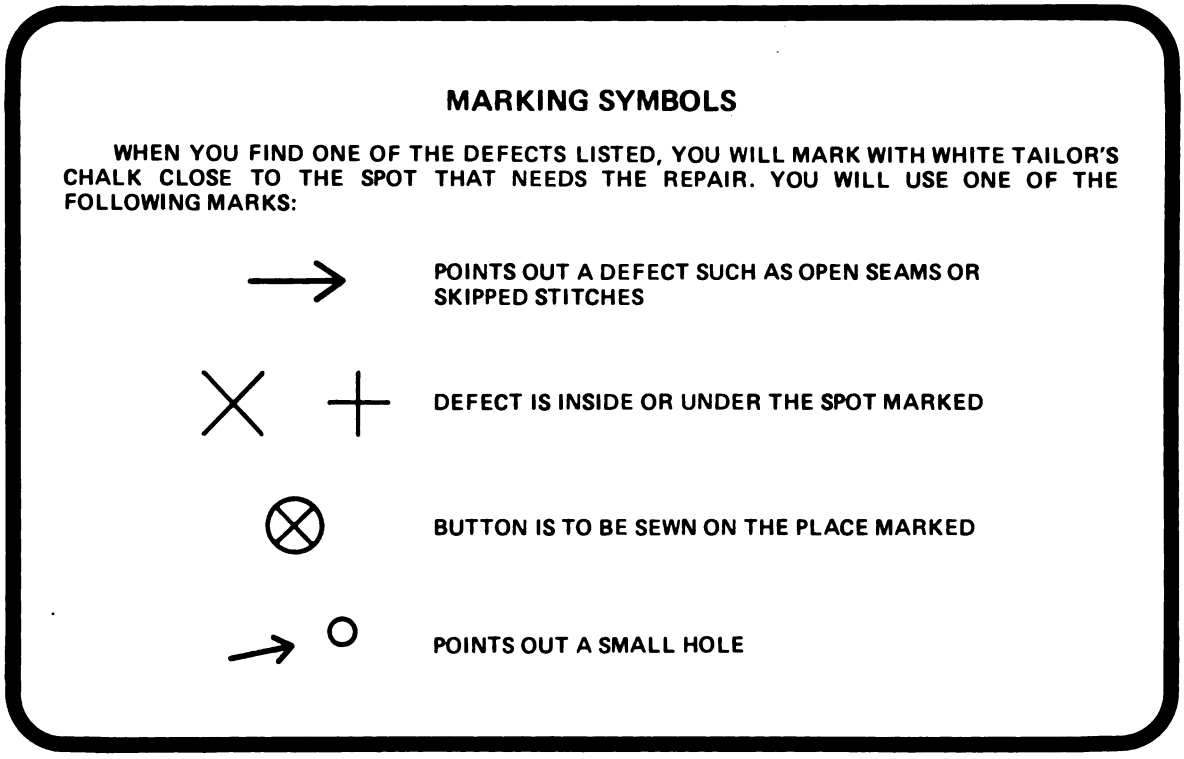
MARKING SYMBOLS
WHEN YOU FIND ONE OF THE DEFECTS LISTED, YOU WILL MARK WITH WHITE TAILOR'S CHALK CLOSE TO THE SPOT THAT NEEDS THE REPAIR. YOU WILL USE ONE OF THE FOLLOWING MARKS:
POINTS OUT A DEFECT SUCH AS OPEN SEAMS OR SKIPPED STITCHES
DEFECT IS INSIDE OR UNDER THE SPOT MARKED
BUTTON IS TO BE SEWN ON THE PLACE MARKED
POINTS OUT A SMALL HOLE

2

Figure 2104. Symbols used to mark defects.

REFERENCES: **The performance measures give you all the information you need to know to complete this task. No additional references are required.**

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Section IV

*FABRIC REPAIR NCOIC (43M3A)

TASK NUMBER	TITLE	PAGE
	FABRIC REPAIR OPERATIONS	
101-513-3101	Establish a shop safety program.	3-204
101-513-3102	Direct operations of the shop receiving, classification, and repair area.	3-206
101-513-3103	Control and maintain records for equipment.	3-209

2

*Tasks for the Fabric Repair NCO, pay grade E7, are the same as those listed above and are not printed again.

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■ 101-513-3101

ESTABLISH A SHOP SAFETY PROGRAM.

CONDITIONS: You are working in the fabric repair shop. You have been instructed by the unit safety officer to establish a shop safety program. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: applicable form for local command, AR 385-10, and AR 385-55.

STANDARD: You must complete all performance measures without error to establish a shop safety program.

PERFORMANCE MEASURES:

1. Prepare shop's standing operating procedure (SOP) on safety. (See fig 3101.)

a. State the purpose and scope of the safety program.

b. Schedule weekly or monthly safety meetings.

c. Show a safety log sheet and explain its purpose and scope.

d. List all points to be inspected in the daily safety inspection.

2

e. Describe the lifting technique to be used by personnel.

f. Prepare a list of personal protective clothing and equipment.

g. Make a layout of smoking and nonsmoking areas and fire exits in the shop.

2. Prepare and post the shop fire evacuation plan.

a. Describe items of firefighting equipment. Prepare and post a layout of their locations.

b. State the procedures to be followed during specific fire drills.

3. Prepare and post the requirements for all drivers to attend the National Safety Council Defensive Driving Course conducted within your command.

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■ SHOP SAFETY PROGRAM SOP

SECTION I
PURPOSE AND SCOPE

PURPOSE: This SOP provides the shop officer and assigned personnel having official responsibility for safety and accident prevention with guidance in applying policies, procedures, and information necessary to conduct the shop safety program as outlined in the SOP.

SCOPE: **a.** Information in this SOP deals primarily with the basic principles of accident prevention.

b. The procedures and techniques of accident prevention presented in this SOP are based on experience gathered by the Army over a period of years. The application of these procedures and techniques has been successful in reducing accidents in the past and will be in the future.

SECTION II
SOP SAFETY POLICY AND PROGRAM

1. **Safety Management**
2. **Safety Program Elements**
   - **a.** Administration
   - **b.** Training
   - **c.** Inspection
   - **d.** Responsibility

3

Figure 3101. Sample shop safety program SOP.

REFERENCES: **AR 385-10 (Army Safety Program).**

AR 385-55 (Prevention of Motor Vehicle Accidents).

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■ 101-513-3102

DIRECT OPERATIONS OF THE SHOP RECEIVING, CLASSIFICATION, AND REPAIR AREA.

CONDITIONS: You are working in the fabric repair shop. Your commander has instructed you to direct the operation of the shop receiving, classification, and repair area. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: pen, pencil, and paper.

STANDARD: You must complete all performance measures as outlined in AR 32-15, AR 710-2, and TM 38-750.

PERFORMANCE MEASURES:

1. Direct the processing of DA Forms 2407 (Maintenance Requests).

a. Make sure all requests are complete with the appropriate information. (See fig 3102.1.)

b. Make sure all high-priority requests have been approved before the requests are accepted.

2

c. Make sure the persons or units submitting the requests have a DA Form 1687 (Notice of Delegation of Authority-Receipt for Supplies) on file. (See fig 3102.2.) Check DA Form 1687 to make sure

(1) the date of ETS or PCS appears on the form for each person listed.

(2) it is valid. Each form remains valid for 1 year after the date it is submitted.

(3) the person submitting the DA Form 1687 was appointed by the battalion S4. A Disposition Form (DF) indicating who submitted the name must be filed with DA Form 1687.

2. Direct the operations of the inspection and classification section.

a. Make sure all inspectors are using the correct procedures for inspecting and classifying items as described in AR 32-15.

b. Make sure all inspectors are using the correct classification codes.

c. Make sure the inspection section maintains a current copy of the shop SOPs.

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MAINTENANCE REQUEST
For use of this form, see TM 38 750, the proponent agency is DCSLOG

PAGE NO. 1 | NO OF PAGES 1 | REQUIREMENT CONTROL SYMBOL CSGLD-1047(R1)

SECTION I – EQUIPMENT DATA

CONTROL NUMBER	WORK ORDER NUMBER	WESDC	ORG PD	PD AUTHENTICATION
529311			13	

WORK REQUEST / MWO / WARRANTY CLAIM	1a. ORGANIZATION	b. LOCATION	c. UNIT IDENT CODE
[X] WORK REQUEST [ ] MWO [ ] WARRANTY CLAIM	HQ & HQ Co, 1st Bde	Ft Blank, Texas 77011	WAABAA

2. SERIAL NO.	3. NOUN NOMENCLATURE	4. LINE NO.	5. MODEL	6. NATIONAL STOCK NUMBER
	TENT		GP MED	8340-00-753-6711

7. MAINTENANCE ACTIVITY	a. LEVEL	8. UTILIZATION CODE	9. MCSR ITEM	c. ERC	b. PACING ITEM	10. HOURS	11. MILES	12. ROUNDS	13. STARTS
F		ON							

14. FAILURE DETECTED DURING (Select one - use ✓ or X)
[ ] A Scheduled Maintenance [ ] C Test [ ] E Storage [ ] G Flight
[ ] B Handling [ ] D Normal Op [X] F Inspection [ ] H Other

15. FIRST INDICATION OF TROUBLE (Select one - use ✓ or X)
[ ] 068 Inoperative [ ] 258 Overheating [ ] 790 Out of Adjustment
[ ] 008 Noisy [ ] 387 Low Performance [X] 00 Other

16. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM (Do not prescribe repairs)

7 ITEMS WITH DEFECTS SUCH AS HOLES AND TEARS
(REPAIR AS NEEDED)

16a. REMARKS

SECTION II – WORK ACCOMPLISHED

17a. REPAIR ORGANIZATION/ACTIVITY	c. UNIT IDENT CODE	18. TYPE ORGANIZATION/ACTIVITY ACCOMPLISHING WORK (Select one - use ✓ or X)	19. AMS ACCOUNT CODE
27 TH MAINT (DS)	WABAAA	[X] 1 TOE [ ] 2 TD [ ] 3 CONTRACTOR	
b. LOCATION: Ft Blank, Texas			

a. ACT CODE	b. FAILURE CODE	c. COMPONENT/PART NOUN, SVC, OR MWO NO	d. CB CODE	e. REF DESIGNATOR	f. MFR CODE	MANHOURS (Hrs & tenths) g	NATIONAL STOCK NUMBER h	i. PART SOURCE CODE	QTY j	PARTS COST k
F	070			INITIAL INSPECTION		.5				
						.				
C		TENT GP MED 7EA				40.0	8340-00-753-6771			
						.	8340-00-753-6771 P		6 YDS	3.00
						.				
						.				
						.				
						.				
						.				
						.				
						.				
						.				
G	799	7EA				1.0				

l. TOTAL MANHOURS	m. TOTAL MANHOURS COST	n. TOTAL PARTS COST
41.5	$151.88	$ 3.00

21. DELAY (Select one) [ ] 1 Parts [ ] 2 Manpower [ ] 3 Facilities [ ] 4 Funds [ ] 5 Tools
22. [ ] DATA TRANSCRIBED

23. SUBMITTED BY	24. RECEIVED BY	25. WORK STARTED BY	26. INSPECTED BY	27. ACCEPTED BY	28. DISPOSITION (Select one)
John Doe	Joe Smith	Bo Jones	Joe Smith	John Doe	[X] A To User [ ] G Salvaged [ ] B To Stock [ ] D Evacuated [ ] H Cannibalization
JULIAN DATE 8227	JULIAN DATE 8227	JULIAN DATE 8231	JULIAN DATE 8237	JULIAN DATE 8238	

DA FORM MAY 81 2407 EDITION OF JUL 79 IS OBSOLETE. CONTROL COPY 3

Figure 3102.1 Completed maintenance request.

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NOTICE OF DELEGATION OF AUTHORITY-RECEIPT FOR SUPPLIES
For use of this form, see AR 710-2; the proponent agency is the Office of the Deputy Chief of Staff for Logistics

DATE: 15 Aug 78

AUTHORIZED REPRESENTATIVE(S)

ORGANIZATION	STATION
HQ & HQ Co 1st Bde 110th Inf Div	Ft Blank, Texas

LAST NAME–FIRST NAME–MIDDLE INITIAL	SOCIAL SECURITY ACCOUNT NUMBER	AUTHORITY REQ	AUTHORITY REC	SIGNATURE AND INITIALS
ETS - 15 Aug 1980 DOE, JOHN O.	001-60-1692	X	X	John O. Doe J.O.D.
ETS - 4 Oct 1980 WRIGHT, IRVING M.	155-62-9000	X	X	Irving M. Wright I.M.W.
ETS - 6 Mar 1980 JONES, WILLIAM R.	312-03-2978	X	X	William R. Jones, W.R.J.
///NO ENTRY///				

AUTHORIZATION BY RESPONSIBLE SUPPLY OFFICER OR ACCOUNTABLE OFFICER

THE UNDERSIGNED HEREBY DELEGATES TO WITHDRAWS FROM THE PERSON(S) LISTED ABOVE, WHOSE SIGNATURE(S) APPEAR(S) ABOVE. THE AUTHORITY TO SIGN:

REMARKS

I ASSUME FULL RESPONSIBILITY

ORGANIZATION	GRADE	ACCOUNT NUMBER
Hq & HQ Co., 1st Bde, 110th Inf Div	CPT	WAABAA

LAST NAME–FIRST NAME–MIDDLE INITIAL (Print or Type)	SIGNATURE
SMITH, ALLEN T.	Allen T. Smith

DA FORM 1 DEC 57 1887 REPLACES EDITION OF 1 APR 56.

3

Figure 3102.2 Completed DA Form 1687.

3. Monitor the repair area.

a. Make sure all phases of repairs meet the standards stated in the shop SOP and the repair manuals.

b. Make sure equipment maintenance is being performed.

c. Check tools and equipment assigned to repair personnel.

REFERENCES:

AR 32-15 (Classification and Inspection).

AR 710-2 (Materiel Management for Using Units, Support Units, and Installations).

TM 38-750 (The Army Maintenance Management System (TAMMS)), chapters 2, 3, and 4.

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■ 101-513-3103

CONTROL AND MAINTAIN RECORDS FOR EQUIPMENT.

CONDITIONS: You are working in a fabric repair shop. One of your responsibilities is to supervise maintenance of equipment and records. This task is performed in garrison or simulated combat under all environmental conditions. Duty uniform will be worn. Materials required: pen or pencil, DD Form 314 (Preventive Maintenance Schedule and Record), DA Form 2062 (Hand Receipt/Annex No.), DA Form 2404 (Equipment Inspection and Maintenance Worksheet), DA Form 2405 (Maintenance Request Register), and DA Form 2407 (Maintenance Request), AR 710-2, and TM 38-750.

STANDARD: You must complete all performance measures to control and maintain records for equipment. Personnel must be briefed on the preventive maintenance program.

PERFORMANCE MEASURES:

1. Check hand receipts to make sure –

   a. the signature of the hand receipt holder appears on the receipt. (See fig 3103.1.)

   b. all accountable items are listed on the receipt. (See fig 3103.1.)

2. Check equipment and adjust hand receipts.

   a. Check all components of the sewing machines, tool sets, and textile repair kits for shortages.

   b. Prepare and post an annex for any shortages.

   c. Adjust balances shown on the hand receipt by using temporary hand receipts.

   d. File the completed hand receipts in a hand receipt folder.

3. Review maintenance records.

   a. Review DA Form 2405 to make sure that a DA Form 2407 has been posted for all unserviceable equipment submitted to the support maintenance activity.

   b. Brief subordinates on any errors that you find.

   c. Correct all errors.

4. Check DA Form 2404 to make sure equipment faults found during operator's daily inspection or periodic maintenance service have been entered if they cannot be corrected by the operator or crew or if they can be corrected by replacing parts.

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HAND RECEIPT
For use of this form, see AR 710-2; the proponent agency is the office of the Deputy Chief of Staff for Logistics.

FROM: 21st Maint Co
PBO

TO: 21st Maint Co
Fabric Repair Shop
Hand Receipt File No.

Following last item, state in each balance column the type of action *(e.g. issue, turn-in, inventory, etc.)* producing this balance, date of action, and signature.

Fill in the following when this form is used as Hand Receipt Annex.

CATALOG NO. | CURR OF ALW | ITEM

STOCK No	ITEM DESCRIPTION	T[1] (a)	C[2] (t)	BALANCE 1	2	3	4	5	6	7	8	9	10	11	12
3530-201-8976	(TM 3530-203-10, June 66) Sewing Machine, Model 331K1	6		6											
3530-201-8977	(TM 3530-203-10, June 66) Sewing Machine, Model 211G155	2		2											
3530-201-8978	(TM 3530-203-10, June 66) Sewing Machine, Model 47W70	1		1											
3530-201-8979	TM 3530-203-10, June 66) Sewing Machine, Model 7-33	3		3											
5120-201-6783	(TM 3530-203-10, June 66) Tool Set, Common 11592	2		Ø											

[1] T - Total allowance for Hand Receipts (a) Authorized per item for Hand Receipt Annexes.
[2] C - Current operating allowance for Hand Receipts. (t) Total authorized for Hand Receipt Annexes.

PAGE No 1
No OF PAGES 5

DA FORM 1 JAN 58 2062

Figure 3103.1 Front of DA Form 2062(Hand Receipt).

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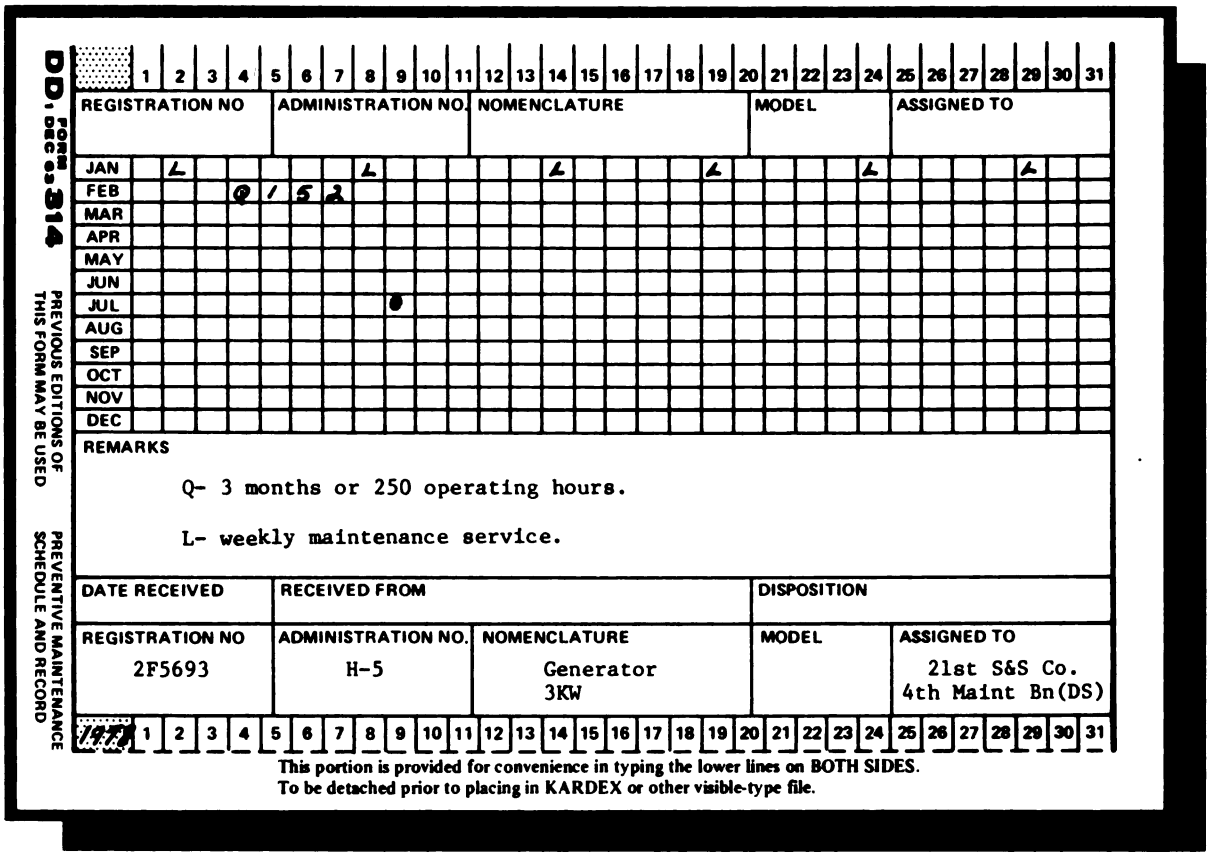
STOCK No	ITEM DESCRIPTION	T[1] (a)	C[2] (i)	BALANCE 1	2	3	4	5	6	7	8	9	10	11	12
	"I am aware that the property contained on this hand receipt is in the possession of an individual assigned under my supervision."														
	SFC John Doe 20 FEB 19XX														



DD, FORM 1 DEC 68 314 PREVIOUS EDITIONS OF THIS FORM MAY BE USED

PREVENTIVE MAINTENANCE SCHEDULE AND RECORD

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

REGISTRATION NO	ADMINISTRATION NO.	NOMENCLATURE	MODEL	ASSIGNED TO

JAN	L						L						L					L					L					L		
FEB			Q	/	5	2																								
MAR																														
APR																														
MAY																														
JUN																														
JUL								●																						
AUG																														
SEP																														
OCT																														
NOV																														
DEC																														

REMARKS

Q- 3 months or 250 operating hours.

L- weekly maintenance service.

DATE RECEIVED	RECEIVED FROM	DISPOSITION

REGISTRATION NO	ADMINISTRATION NO.	NOMENCLATURE	MODEL	ASSIGNED TO
2F5693	H-5	Generator 3KW		21st S&S Co. 4th Maint Bn(DS)

1977	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

This portion is provided for convenience in typing the lower lines on BOTH SIDES.
To be detached prior to placing in KARDEX or other visible-type file.

3

Figure 3103.2. Preventive Maintenance Schedule and Record.

5. Check DD Form 314 to make sure —

a. it was prepared correctly with year, registration or serial number, nomenclature, model, date received, unit to which assigned, and remarks, and that weekly or monthly maintenance and lubrication service was recorded.

b. appropriate symbol was entered in pencil for scheduled service that is to be done at a later date.

c. appropriate symbol was entered in ink on the date on which service was completed.

d. all like items of equipment scheduled for service on the same date are listed on the same DD Form 314 and that each item is identified by serial number in the "Remarks" section of the form or on an attached sheet.

REFERENCES:

AR 710-2 (Materiel Management for Using Units, Support Units, and Installations), chapter 2.

TM 38-750 (The Army Maintenance Management System (TAMMS)), chapter 2.

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APPENDIX A
REFERENCES

Not all of the publications that contain information on the subjects listed in the soldier's manual are listed here. New materials are constantly being published, and present references may become obsolete. To keep up to date, check the indexes of the DA Pam 310 series and instructional material catalogs.

ARMY REGULATIONS

32-15	Classification and Inspection
385-10	Army Safety Program
385-55	Prevention of Motor Vehicle Accidents
710-2	Materiel Management for Using Units, Support Units, and Installations

TECHNICAL MANUALS

5-6115-271-14	Operator/Crew, Organizational, Intermediate (Field), (Direct and General Support) and Depot Maintenance Manual: Generator Set, Gasoline Engine Driven, Skid Mounted, Tubular Frame, 3 kw, 3 Phase, AC, 120/208 and 120/240 V, 28 V DC (Less Engine)
10-4500-200-13	Operator's, Organizational, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List): Heaters, Space; Radiant-Type; Portable (Type I, Model 1941, Solid Fuel) (NSN 4520-00-257-4877); (Type II, Model 1941, Liquid Fuel) (4520-00-927-4214) (Yukon Model M1950, Solid or Liquid Fuel), NSN 4520-00-287-3353; Heaters, Immersion: Liquid Fuel Fired for Corrugated Cans (All Makes and Models), NSN 4540-00-266-6835; (Preway Model 447-2EX) NSN 4540-00-266-6834
10-8340-211-13	Operator's, Organizational, and Direct Support Maintenance Manual: Tent, General Purpose: Small (NSN 8340-00-753-6571), Medium (8340-00-543-7788), and Large (8340-00-285-5599)
10-8400-201-23	Organizational and Direct Support Maintenance Manual: General Repair Procedures for Clothing and Individual Equipment
38-750	The Army Maintenance Management System (TAMMS)

ARMY TRAINING AND EVALUATION PROGRAMS, QUARTERMASTER PROPONENCY

10-7	Supply and Service Company, Supply and Transport Battalion, Armored, Infantry, and Infantry (Mechanized) Division
10-437	Laundry and Renovation Company, General Support
29-114	Field Service Company, Forward

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APPENDIX B
PUBLICATIONS SOURCES

If you need any of the training resources mentioned in this soldier's manual, check with your unit training NCO, worksite supervisor, platoon sergeant, or MOS library or have your unit get you a copy from the installation AG Publications Center.

If these sources cannot help you, the unit can request, with your commander's approval, the materials you need from the following locations:

TRAINING RESOURCES	ADDRESS
ARs, FMs, TCs, DA Pams	US Army AG Publications Center 2800 Eastern Boulevard Baltimore, Maryland 21220
TMs	US Army AG Publications Center 1655 Woodson Road St. Louis, Missouri 63114

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APPENDIX C
TRAINING AIDS AND DEVICES

TRAINING FILMS (TF)

10-4663	General Purpose Tents, Medium and Large

TRANSPARENCIES AND GRAPHIC TRAINING AIDS (TG)

10-4-5	Tent: General Purpose, Large and Medium

*QUARTERMASTER SCHOOL TV TAPES

0201	General Purpose Tents
0297	Maintenance Records
FR-B-1-PFS	Inspection and Marking of Clothing Defects
FR-C-1-PFS	Hand Sewing Tools and Implements
FR-D-5-PFS	Cleaning the Shuttle Race Assembly
FR-E-1-PFS	Simple Seam and Seam Type 1
FR-E-2-PFS	Seam Type 2
FR-E-3-PFS	Seam Type 3
FR-E-4-PFS	Seam Type 4
FR-E-6-PFS	Zig-Zag and Reinforced Darn
FR-E-7-PFS	Simple Top and Inverted Patch
FR-E-8-PFS	T-Patch
FR-E-10-PFS	Repair Pocket Linings
FR-E-12-PFS	Repair Zippers
FR-F-1-PFS	Tent Pitching, Striking and Folding
FR-F-2-PFS	Clothing Repair Shop (Trailer Mounted)
FR-H-3-PFS	Handworked Grommets
FR-H-4-PFS	Metal Grommets and Snap Fasteners
FR-H-5-PFS	Chemical Treatment of Canvas

***Note: To obtain these tapes, the requiring activity must send a blank tape to:**

Training and Audiovisual Support Center
Television Branch
US Army Quartermaster School
Fort Lee, Virginia 23801

The tapes will be recorded and returned to the requesting activity.

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FR-H-6-PFS	Whipping and Splicing Ropes
FR-I-1-PFS	Introduction to Canvas Sewing Machines
FR-J-1-PFS	Seam and Hem Repairs
FR-J-2-PFS	Simple and Simple Felled Top Patches
FR-J-4-PFS	Watershed Patch
FR-J-5-PFS	Near the Seam Patches
FR-J-6-PFS	Overseam Patch
FR-J-8-PFS	Grommet Patch
FR-J-9-PFS	Seam-to-Seam Patch
FR-J-11-PFS	Tarpaulins, Truck Covers

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QUESTIONNAIRE

This is your soldier's manual, and we need your help to make it better. Your answers to these questions will tell us how we can improve your manual.

YES	NO	
☐	☐	Does the introduction help you understand the MOS organization and how to get promoted?
☐	☐	Do you understand what the SQT is and how to prepare for it?
☐	☐	Do you understand how to use your soldier's manual?
☐	☐	Do you understand the tasks expected of you?
☐	☐	Is there anything you would add to your soldier's manual?

COMMENTS

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USA QM School
Fort Lee, VA 23801

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COMMANDANT
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STAPLE

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21 DECEMBER 1981

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

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